AMERICAN

JOURNAL OF INSANITY,

FOR JANUARY, 1872.

THEORIES OF EVOLUTION—No. II.

The Descent of Man and Selection in Relation to Sex. By CHAS. DARWIN, M. A., F. R. S., etc. In two vols. New York: D. Appleton & Co. 1871.

On the Genesis of Species. By ST. GEORGE MIVART, F. R. S. New York: D. Appleton & Co. 1871.

Lay Sermons, Addresses and Reviews. By THOS. HENRY HUXLEY, LL. D., F. R. S. D. Appleton & Co. 1870.

Mr. Darwin appears to have discovered, with Aristotle, that "man is an animal"—belongs to the animal kingdom; and has certain homologies with all other organized forms of being. By the application of his hypothesis of "Natural Selection," by which he accounts for the origin of species with all their varieties and races in the animal and vegetable world, after having subjected it to certain serious modifications and supplementary agencies principally under the head of "Sexual Selection," he seeks to convince us also that Man is *nothing but* an animal, developed like all other species, by insensible gradations, out of the lowest rudimentary forms of living organism: in fact, that man has nothing about him which entitles him to stand apart as a "kingdom by himself." We shall first let Mr. Darwin state, in his own language, the conclusion to which he be-

lieves his investigations, certainly ranging over a vast field and dealing with an array of facts, which, though multitudinous in one view, really bear no proportion to the vastness of that field, have brought him. In the conclusion of his sixth chapter, on "Affinities and Genealogy," he says:

The most ancient progenitors in the kingdom of the Vertebrata, at which we are enabled to obtain an obscure glance, *apparently* consisted of a group of marine animals, resembling the larvae of existing Ascidians. These animals *probably* gave rise to a group of fishes, as lowly organized as the lancelet; and from these the Ganoids, and other fishes like the Lepidosiren, must have been developed. From such fish a very small advance *would* carry us on to the amphibians. We have seen that birds and reptiles were once intimately connected together: and the Monotremata now, in a slight degree, connect mammals with reptiles. *But no one can at present say* by what line of descent the three higher and related classes, namely, mammals, birds and reptiles, were derived from either of the two lower vertebrate classes, namely, amphibians and fishes. In the class of mammals the steps are *not difficult to conceive* which led from the ancient Monotremata to the ancient Marsupials: and from these to the early progenitors of the placental mammals. We may thus ascend to the Lemuridae: and the interval is not wide from these to the Simiadae. The Simiadae then branched off into two great stems, the New World and Old World monkeys: and from the latter, at a remote period, Man, the wonder and glory of the universe, proceeded. Thus we have given to man a pedigree of prodigious length, but not, it may be said, of noble quality. * * * * If any single link in this chain had never existed, man would not have been exactly what he now is. *Unless we wilfully* close our eyes, we may, with our present knowledge, approximately recognize our parentage; nor need we feel ashamed of it. Vol. I, chap. vi., p. 204.

Again, in the conclusion of the whole work:

By considering the embryological structure of man—the homologies which he presents with the lower animals—the rudiments which he retains—and the reversions to which he is liable, we can partly recall in imagination the former condition of our early progenitors: and can approximately place them in their proper position in the zoölogical series. We thus learn that man is descend-

ed from a hairy quadruped, furnished with a tail and pointed ears, probably arboreal in his habits, and an inhabitant of the Old World. This creature, if its whole structure had been examined by a naturalist, would have been classed among the Quadrumana, as surely as would the common and still more ancient progenitor of the Old and New World monkeys. The Quadrumana and all the higher mammals are probably derived from an ancient marsupial animal, and this through a long line of diversified forms, either from some reptile-like or some amphibian-like creature, and this again from some fish-like animal.

In the dim obscurity of the past *we can see* that the early progenitor of all the Vertebrata *must have been* an aquatic animal, provided with branchiae, with the two sexes united in the same individual, and with the most important organs of the body (such as the brain and heart) imperfectly developed. This animal *seems* to have been more like the larvae of our existing marine Ascidians than any other known form. (Vol. II, p. 372.)

Doubtless this conclusion is stated with as much definiteness and precision as the subject admits of: but the process of the argument exhibits many more striking instances of a tentative, hypothetical or suppositive phraseology than those we have italicized in the above extracts.

What obligation of pure science called for the following remark on the last page of his work, it is difficult for us to imagine. Such words seem rather an appeal to faith in an *opinion*, than a demand of intellectual assent to an established scientific proposition:

For my own part, I would as soon be descended from that heroic little monkey, who braved his dreaded enemy in order to save the life of his keeper: or from that old baboon who, descending from the mountains, carried away in triumph his young comrade from a crowd of astonished dogs—*as from* a savage who delights to torture his enemies, offers up bloody sacrifices, practises infanticide without remorse, treats his wives like slaves, knows no decency, and is haunted by the grossest superstitions.

To this eloquent extract, at which even higher organisms than "dogs" might be "astonished," we suppose

that no logician would think of appending the usual conclusive formula, "*Quod erat demonstrandum*," although there could certainly be no objection to the more familiar comment in such cases—"*De gustibus nil disputandum.*" But whatever may be his preference, it would seem there is no alternative: the bloody savage, according to the theory, *comes between* the monkey and Mr. Darwin.

To show still further the perfect confidence, spiced with some dogmatism, which Mr. Darwin appears to have in his conclusions, we cite one more passage, to be found at the close of his first chapter:

> Thus we can understand how it has come to pass that man, and all other vertebrate animals, have been constructed on the same general model, why they pass through the same early stages of development, and why they retain certain rudiments in common. *Consequently we ought frankly to admit* their community of descent: to take any other view, is to admit, that our own structure, and that of all the animals around us, is a mere *snare laid* to entrap our judgment. This conclusion is greatly strengthened, if we look to the members of the whole animal series and consider the evidence derived from their affinities or classification, their geographical distribution, and geological succession. It is *only* our natural prejudice, and that arrogance which made our forefathers declare that they were descended from demi-gods, which lead us to demur to this conclusion. But the time will before long come when it will be thought wonderful that naturalists, who were well acquainted with the comparative structure and development of man and other mammals, should have believed that each was the work of a separate act of creation. Vol. I, p. 32.

It is evident that Mr. Darwin considers every person who is not converted to his theory of the origin of species by Natural Selection as necessarily a believer in a separate act of special creation for all the species and races of living beings. In his "Origin of Species" he allowed "a few" original forms: he now insists upon only one: and recognizes no modes of evolution

per saltum, or by special manifestation, or other than what is consistent with the slow, gradual processes of Natural Selection, aided or supplemented to some extent by Sexual Selection. We will not say that his book must stand or fall with the doctrine of Natural Selection: for we can not admit that even if a Law of natural selection were fully established in the Animal kingdom it would be sufficient to account for the origin of species, much less furnish us with a real anthropology. The theory of Natural Selection has been before the world ten years, before its application to the question of Man's genealogy. But so far from gaining any accession of strength from continued investigations, it has been constantly losing ground, so far as it pretends to be anything like a complete account of the development of animal life. Mr. Wallace, who is certainly entitled to equal credit with Mr. Darwin as an original propounder of this theory, has pointed out many facts and phenomena utterly irreconcilable with it: and Mr. Darwin, in the work before us, makes admissions which can not but be regarded as fatal to it. It is true, that in the passages we have cited, as well as in several others not less significant, Mr. Darwin seems to consider that science is bound to have *some* theory: and a sort of threat is thrown out to us, "accept this or none." *Not* to accept it, is to admit that the whole scheme of things around us is a "mere snare laid to entrap our judgment." "Laid" by whom or by what? And yet the attitude assumed by Mr. Darwin and his school toward teleology, or the apparent system of final causes, which they relegate to mere "anthropomorphism," is simply equivalent to just this position, that all the marks of *design*, of which all nature is full, *are* a "mere snare *laid* to entrap our judgment." *This* hypothesis or *none:* for it is necessary that we should have *some* hypothesis!

Talleyrand, to a person excusing himself for some fault by remarking, "One *must live*, you know," is said to have replied, "*Je ne sais pas la necessite.*" Is it absolutely necessary that science should now claim to have already arrived at a complete cosmogony: and that too on the basis of an array of facts but partially classified, which, however numerous, are really but as a few drops to the great ocean of unexplored truth? The world is already built, and can stand without any artificial scaffolding of our own construction.

No philosophical proposition was ever advanced of wider scope both as to space and time than the theory of Natural Selection: none for which more was claimed, as completely meeting and covering all known facts. It is simply turning out to be inadequate in a thousand directions. In the "Origin of Species" Mr. Darwin says, "Natural selection can act only by taking advantage of slight successive variations; she can never take a leap, but must advance by short and slow steps," and "if it could be demonstrated that any complex organ existed which could not possibly have been formed by numerous successive slight modifications, my theory would absolutely break down."

Moreover, details of structure must have been of special use to ancestral forms, or to the forms of their descendants: and "if it could be proved that any part of the structure of any one species had been formed for the exclusive good of another species, it would annihilate my theory, for such could not have been produced through natural selection."

But nothing is better demonstrated than that Nature does make leaps, as Professor Huxley admits in those very instances brought forward to show how species may originate from indefinite variability: as in the case of the Ancon sheep and the Kelleia family: (Lay Ser-

mons, p. 268, 297,) where also the fallacy of reasoning from domestic breeding to species in nature is recognized: to say nothing of the fact that the phenomena of hybridism which go to show the existence of some unknown limit of variation, confining it to certain spheres round definite types, are as good as ignored, or quietly assumed to be of no significance. Mr. Mivart gives abundant examples of development *per saltum* in his fourth chapter.

And as for the existence of "any complex organ which could not possibly have been formed by numerous, successive, slight modifications," out of the several illustrations which Mr. Mivart, in his chapter on "Incipient structures," has given of such complex organs, we will take the following, which we think our readers will agree, "almost amounts to a demonstration."

> The mode of formation of both the eye and the ear of the highest animals is such that, if it is (as most Darwinians assert processes of development to be) a record of the actual steps by which such structures were first evolved in antecedent forms, it almost amounts to a demonstration that those steps were never produced by "Natural selection." The eye is formed by a simultaneous and corresponding ingrowth of one part and outgrowth of another. The skin in front of the future eye becomes depressed, the depression increases and assumes the form of a sac, which changes into the aqueous humor and lens. An outgrowth of brain substance, on the other hand, forms the retina, while a third process is a lateral ingrowth of connective tissue, which afterward changes into the vitreous humor of the eye. The internal ear is formed by an involution of the integument, and not by an outgrowth of the brain. But tissue, in connection with it, becomes in part changed, thus forming the auditory nerve, which places the tegumentary sac in direct communication with the brain itself. Now these complex and simultaneous coördinations could never have been produced by infinitesimal beginnings, since, *until so far developed as to effect the requisite functions*, they are useless."

He cites Mr. Murphy as making a calculation which shows the improbabilities of natural selection in this

case to be about as great as those of evolving a poem and a mathematical proposition by shaking out letters from a box.

We shall see that so far as the question of man's genealogy is concerned, Mr. Wallace has found many facts still further inexplicable on the hypothesis of natural selection. Some of these difficulties are recognized by Mr. Darwin in the work before us. He admits now that in his "Origin of Species" he "attributed too much to the action of natural selection or the survival of the fittest." "I had not formerly," he adds, "sufficiently considered the existence of many structures which appear to be as far as we can judge, *neither beneficial* nor *injurious:* and this I believe to be one of the greatest oversights as yet detected in my work." (Vol. I, p. 146.) And for this he gives the rather strange excuse, that he had been misled by the object predominant in his mind, and perhaps too much occupying his attention, of overthrowing the *dogma* of separate creations! He sees clearly enough on his former theory, that modifications (or variations) *not* beneficial could not have been kept *uniform* by natural selection, even though injurious ones are eliminated by it. Hence his superadded theory of "Sexual Selection," which in its explication, occupies about two-thirds of this work. But it is a grave question how far this resort, instead of strengthening his original theory, may virtually prove an abandonment of it. Even in connection with these admissions, and before taking up the subject of sexual selection, he seems to have acquired sundry suspicions of certain *unknown* laws and agencies in organic being which neither theory can take into account.

> An unexplained residuum of change, perhaps a large one, must be left to the assumed action of those *unknown* agencies, which occasionally induce strongly marked and abrupt deviations of structure in our domestic productions. (Vol. I, p. 148.)

This very remarkable admission, which opens a wide door for parting company with Mr. Darwin's fascinating speculations, is reiterated still more strikingly and candidly in the conclusion of his work. Speaking of structures presented by man as well as other animals which have been of no service to them either in the past or the present, he says:

> Such structures can not be accounted for by *any* form of selection, or by the inherited effects of the use and disuse of parts. We know, however, that many strange and strongly marked peculiarities of structure occasionally appear in our domesticated productions: and if the unknown causes which produce them were to act more uniformly, they would probably become common to all the individuals of the species. We may hope hereafter to understand something about the *causes* of such occasional modifications especially through the study of monstrosities: hence the labors of experimentalists, such as those of M. Camille Dareste, are full of promise for the future. In the greater number of cases we can *only say* that the cause of each slight variation and of each monstrosity lies much *more in the nature or constitution of the organism*, than in the nature of the surrounding conditions: though new and changed conditions certainly play an important part in exciting organic changes of all kinds. (Vol. II, pp. 370–1.)

It seems obvious enough that such a recognition of some inherent, innate power or law in the *nature and constitution* of living organisms, is, if not a virtual retraction of the theory of natural selection, at least a confession that there are causes and agencies at work in the development of living beings, of which the Darwinian system can give no account. We have here admissions not only of plenty of abrupt *leaps* in nature, but also of various continuities of existence which are not only not expressed by, but which appear directly to *contradict* "the survival of the fittest." And these admissions come in even after the secondary hypothesis of "sexual selection" has been thoroughly utilized as far as the least plausible explanation of facts will admit.

Having thus pointed out the relations of this work, on the "Descent of Man," to its predecessor, on the "Origin of Species," and some of the apparent "changes of front" which it seems to exhibit in principle, we will now remark upon the various lines of argument by which Mr. Darwin seeks to establish the essential identity of man with the lower animal organisms, and the evolution of the present human being with all its faculties and qualities out of those lower forms. This inquiry of course takes us into the psychological and ethical, as well as the mere zoological question. Mr. Darwin of course would object to the use of the word *natures* in this connection, and have us treat of man as to his physical, intellectual and moral capacities or characteristics, holding that all three are essentially one in their origin and nature.

No matter if the Poet wrote:

> What a piece of work is man! How noble in reason! how infinite in faculty! in form and moving how express and admirable, in action how like an angel! in apprehension, how like a god! the beauty of the world! the paragon of animals!

All these noble faculties are nothing different *in kind*, but only in *degree*, from the developed instincts of ants and bees, or the ceaseless chatter and curiosity of the Simiadae. It is not necessary, in the interests of science, that Mr. Darwin should apologize for his views, when based on indisputable facts by legitimate induction, or ask us not to be ashamed of them. To as little purpose is it to assure us that they are not inconsistent with religion, so long as we are in the dark as to what his idea of religion is, further than a dim natural sentiment of reverence on the part of a lower animal toward one higher in the scale. The doctrine of metempsychosis is not inconsistent with some religions—say the Boodhist. But no one knows better than Mr.

Darwin, that his zealous labors against "the dogma of separate or special creations" really go to the question of *any creation at all:* and if his readers wish to escape the conclusion of the eternity of matter and the absence of creative Power in the universe, they will derive the slenderest possible aid, even from the presumptions and beliefs and suppositions which he so liberally bestows upon the successive steps of his blind unmoral agency of natural selection amid the million fold variations of organic being of which no other cause or solution is offered than *chance.*

To the believer in religion there is something almost sardonic in the argument that a belief in the immortality of the soul is no more affected by the proof of man's descent from an ascidian, than, as he intimates, it ought to be by the difficulty of telling at what precise moment "before or after birth, man becomes an immortal being." (Vol. II, p. 378.)

Even had he put in a special *protestando* against an atheistic Materialism, which we can hardly discover that he intends to do, that of itself would not affect the legitimate conclusions which Theists generally might draw from his positions, and the reasoning by which he supports them. We observe that much is said of the duty of theologians in these days to harmonize their religion with science: but we suppose, it would be deemed absurd to claim that speculations in science should pay much deference to religion. Of the first preachers of religion, however, the one who could speak "science" best, seemed too little concerned to reconcile his "strange doctrines" to the ears of Epicureans and Stoics, apparently thinking that if he could but have access to the heart of humanity at large, he might safely leave Epicureans and Stoics to settle their differences among themselves.

We approach the subject first on the side of zoological details, that on which the strongest points of Mr. Darwin's theory are found. That man is an animal can not be disputed: neither is it denied, that his bodily organization presents many "homologies" with that of other animals, as all other animals do with those of each other. The same chemical constituents enter into his body: "man is constructed on the same *general* type or model with other mammals:" his body is subject to similar laws of reproduction, growth, decay, and death: its muscles, nerves, blood-vessels and bones, are represented by more or less similar ones in the higher forms of inferior species, such as the anthropoid apes: he is liable to some of the same diseases, such as hydrophobia, &c.—a fact, which Mr. Darwin says, "proves the close similarity of their tissues and blood" better even than chemical analysis or the microscope could prove it. To all appearance too, *embryonic* development is almost identical, presenting characters so absolutely alike (to the naked eye) as to give no notice at first of the specific development which is to take place. Mr. Darwin finds resemblance also in certain rudimentary organs, such as the *os coccyx*, remnants of the *panniculus carnosus*, by which horses and cattle twitch their skin; the ability that some people have to move their ears: the straggling hairs upon the body, taken as the rudimentary recurrence of an ancestral hairy coat; the keen sense of smell, of little use, but inherited, &c.; the small *point* on the inner margin of the outer fold of the human ear, first observed by Mr. Woolner, the sculptor; muscular variations in the human frame apparently tending in the direction of the lower animals, taken as indications of *reversion*, &c. All this Mr. Darwin sums up by saying "It is in short, *scarcely possible to exaggerate* the close correspondence in general structure, in the

minute structure of the tissues, in chemical composition, and in constitution, between man and the higher animals, especially the anthromorphous apes."

Now, the question is, do these homologies *prove*, we will not say community of authorship, but community of *descent?* Mr. Darwin's argument is, these animals in certain respects, are *alike:* therefore they *must* have descended from one common form. Why *must* they? To take this for granted begs the whole question. The argument proves too much. Take the question of "chemical composition." Is the sameness of chemical constituents, identity of nature and properties? Any chemical tyro may answer that question. Laws of chemical combination are fixed, but even these combinations are not spontaneous, neither may we know the mysterious secret why the combinations of the elements are as they are, or why the charcoal or the graphite does not "develop" into the diamond. On the hypothesis of *creation*, which must stand till *proved* false, the *onus probandi* being with the evolutionists, ought not the community of *elements* in various organisms to have resulted in certain numerous resemblances, *quoad* their organization?

The fact that man has much in common with the animal, vegetable and mineral world of which he is made the master, only goes to confirm the received account of his origin, since it is the only conceivable way in which a rational soul could be put in relation with that world, to "replenish and subdue it," to handle and come in contact with it, and to fulfill the manifest teleological scheme written on the face of created things, (if it be not a "mere snare laid to entrap our judgment") by which he becomes the final cause of all terrene orders and developments, as a kind of microcosm in himself.

So, then, of this question of embryonic development.

The salient feature in Mr. Darwin's reasoning reminds us of a critical comparison of Bacon and Descartes, the two leading minds of their age, which we casually read some thirty years ago. The mind of Descartes, it was declared, was of that order which detects the minutest differences between things which are alike: while Bacon's mind was more busied in following up those occult resemblances which are to be found between things that on the surface are totally unlike, thus finding a basis for his "*Prima Philosophia.*" Well, Mr. Darwin loses no benefit of his *resemblances.* If, instead of selecting some particular period of development in his embryos for the sake of comparison, he had gone back to the very beginning to tell us of the embryo *matter*, he might have said, what is but the truth, that so far as *appearance* is concerned, not even the microscope would determine whether that matter would develop into a dog, bird, fish, or a human animal. *Is* it therefore the same and identical in all these cases? Yet there is the whole of Mr. Darwin's logic. *What* is it that develops this embryo into one or other of those living forms? Can it be any such thing of accident as Natural selection: or must we refer it to one of those "unknown agencies" which lie more in the *nature and constitution of the organism* itself than in the nature of the surrounding conditions, and to which he thus dimly refers in explanation of certain phenomena that refuse to come under his theory? In short, must we refer it to that principle so briefly expressed in a certain old fashioned account of the creation of all orders of organic beings,—"whose *seed* is in itself"?

A writer in a recent number of the *British Quarterly Review* brings forward some facts we do not recollect to have seen elsewhere in discussions of this question. He denies *in toto* that similarity of structure is *due* to

community of origin: and more than intimates that the evolutionists fight shy of the microscope and are very reticent on the subject of microscopic investigation. Those who have read the "Descent of Man" will judge whether this observation is well founded or not. We can not but agree with him when he says "It is certainly remarkable that a fact which Mr. Darwin evidently considers of vast importance (the close correspondence of human and animal tissues in their minute anatomy) and which is capable of being easily put to the test of observation, should be stated without the results of a single observation being recorded."

Before going into details, he uses the following language, in which one can not but recognize some tinge of severity:

If, however, the tissues, blood and secretions of man were like those of animals, that is, if they could not be distinguished from the latter in ultimate structure and chemical composition and properties, we should be quite ready to accept Mr. Darwin's conclusion; and not a few of Mr. Darwin's readers will imagine that such is really the case; for the language employed almost implies that a very exact likeness has been proved to exist. Mr. Darwin has, however, been careful so to express himself as to lead his readers to adopt the inference he desires, without laying himself open to the charge of undue persuasion, while professing only to be laying facts before their unbiased judgment. In truth, such enthusiasm has been stirred up in favor of Mr. Darwin's doctrine that the task of criticism has become unpleasant, and it requires some courage even to hint that after all they *may* not turn out to be true. And yet it is not possible for any one who has studied anatomical structure to assent to many of the statements in the very first chapter of Mr. Darwin's book. As regards bodily structure and chemical composition, and also minute structure of tissues, there are *points of difference* between man and animals more striking and remarkable than the points in which *resemblance* may be traced. So too, with reference to embryonic development, resemblance increases the further we go back, and much more may be proved than Mr. Darwin requires for the support of his hypothesis. An embryo man is not more like an embryo ape than either is like an

embryo fish. The mode of origin and the development of every tissue in nature are indeed alike in many particulars, but this fact, so far from being an argument in favor of the common parentage of any or all, seems to indicate that all are formed according to some general law, which nevertheless permits the most remarkable variations, not solely dependent upon either external conditions or internal powers.

Prof. Huxley says the explanation advanced by Mr. Darwin is the only one that has been given "of the marvelous fact that the embryos of a man, dog, seal, bat, reptile, &c., can not at first be distinguished from each other." But what explanation does he give of it? "Not only is man's brain developed like the dog's brain, but the *matter* in which every one of his organs originates is like that from which every other tissue in nature is evolved." But when those tissues have begun to be evolved, then "if we examine particular tissues by the aid of high microscopic powers, we shall discover points of difference as well as points in which they agree, and this at every stage of growth subsequent to the time when the tissues have acquired their special characters. * * * If we study carefully the minute structure of corresponding tissues, we shall find that in many instances we are confronted with the most striking and peculiar differences, which tend to establish the idea of individuality and distinctness of origin, rather than that of the community of origin of creatures closely allied in zoölogical characters."

He then takes several animals so closely allied as the newt, frog, toad and green tree-frog, and shows very marked and wide differences of tissues; individual differences and differences in the scale upon which they are formed; differences in the nerve-fibres, muscular fibres, kidneys, cuticle and pigment-cells of the skin, &c., &c. Mr. Darwin of course, would endeavor to turn these facts in favor of development by natural selection.

But if so, his argument from *identity* or *close correspondence* falls to the ground, seeing it does not exist. This writer says:

> On the other hand, actual investigation into the structure of certain corresponding tissues demonstrates remarkable individual peculiarities, and these seem to increase in number the more thoroughly and the more minutely the tissues are explored. What if, in the case of closely allied species, such structural differences be demonstrated in every part of the body? Will the fact be urged in support of a common parentage, or in favor of some different view? It may be fairly asked, if two closely allied forms have descended from a common progenitor not far removed from either, why should almost every tissue and organ in the body exhibit individual peculiarities, not one of which can be regarded as of advantage to the creature, or as contributing in any way to its survival? * * * * If close correspondence in minute structure is to be accepted as an argument in Mr. Darwin's favor, he will surely hardly venture to assert that *differences* in minute structure point to a similar conclusion, though both sets of facts might be ingeniously used in support of this eminently elastic hypothesis. If the supposed correspondence were established, the evolutionist would of course point to the fact in *proof* of a common parentage; but if, on the other hand, the supposed correspondence should be proved to be a fiction, he might retort triumphantly, "Only see in what infinitely *minute* structural particulars the law of *variation* by natural selection manifests its operation!" (*British Quarterly Review*, October, 1871.)

The same writer, who appears to be a good anatomist, which is precisely what is wanted in dealing with such a question, refers to Mr. Gulliver's investigations into the varying form and size of the red blood-corpuscles in different animals, which seem to bear no constant relation to the size of the animal or its position in the zoölogical scale. Mr. Darwin's argument seems to proceed on the supposition that the structural character of man and animals has been thoroughly investigated and is fully known, whereas "we know neither our own structure nor that of any plant or animal in the world." This

subject of minute anatomy is yet, so to speak, in its infancy, if we regard what yet remains to be ascertained. "Of what worth is an argument resting on the fact of hundreds of representative muscles, tendons, bones, and eminences on bones, in closely allied species, if the very muscles, tendons, and bones themselves exhibit minute and constant structural differences? And if besides these anatomical differences, we meet with differences as regards the rate of development—differences in the order of development of certain organs and tissues—differences in the structural changes going on after development is complete, what shall we infer?"

Mr. Darwin himself seems ready to abandon his "provisional hypothesis" of *pangenesis*, although he was at first disposed to incorporate it with his theory of Natural Selection. As to chemical composition, and the homologies depending upon this, it appears that the blood-discs even of animals belonging to the same class are very different, while the blood of one species will not nourish the tissues of another. "Not only does the blood of man differ from that of the lower animals, but the blood of every species of animal differs from that of every other species."

It would seem that the investigations of anatomy and physiology go much further to establish the doctrine of the *fixity* of species than that of evolution by Natural Selection.

It seems a waste of time to go over the speculations on the subject of *variation*. After all that is said of "protoplasm," "molecular" action, &c., that which underlies the phenomenon of *life* forever escapes the grasp of science. Vital phenomena can not be imitated in the laboratory. The changes of living matter belong to living matter only. And we can not but thank the writer already cited at some length, for the following remark:

Nothing surely can be more illogical or unscientific than to assert that actions about which we know nothing, are of the same kind or nature as actions which are understood, and can be brought about whenever we will. Yet physicists, chemists, and indeed most scientific men have fully committed themselves to the dogmatic creed that the phenomena of living matter are, like all the other phenomena of nature, due to antecedent physical change. There are no physical phenomena to which they can point, that in the remotest degree resemble the actions peculiar to living matter.

Everything goes to show that variability implies a fixed and constant *type*, whose variations are its own, and not involved with those of other species. "Transitional forms" are but monstrosities, outside the conditions of continued existence.

This whole subject of "homologies" is of little account, when we come to take cognizance of the *differentia*. Mr. Wallace has shown very strikingly what Natural Selection, even when aided by "Sexual Selection," could not have done for the development of man. On Mr. Darwin's hypothesis, neither of these agencies ought to produce organs which are of no advantage to their possessors, or organs which are much beyond the average required by the existing conditions in which an animal is placed. Mr. Wallace makes a convincing point of the size of the human brain, even in the lowest specimens of the race, with that of the highest specimens of the anthropomorphous apes. He says:

The collections of Dr. J. B. Davis and Dr. Morton give the following as the average internal capacity of the cranium in the chief races: the Teutonic family, 94 cubic inches; Esquimaux, 91; Negroes, 85; Australians, 82; Bushmen, 77. These last numbers, however, are deduced from comparatively few specimens, and may be below the average, just as a small number of Finns and Cossacks give 98 cubic inches, or considerably more than that of the German races.

It appears, too, that the few pre-historic remains of man show no average diminution in the size of brain.

It is of course too late to deny that size of brain is one, perhaps the most important measure of intellect; for whenever an adult man has less than 65 cubic inches of brain, he is invariably an *idiot.* Compare these figures now with those of the anthropoid apes:

> The adult Orang-Outang is quite as bulky as a small-sized man, while the Gorilla is considerably above the average size of man, as estimated by bulk and weight; yet the former has a brain of only 28 cubic inches, the latter one of 30, or in the largest specimen yet known of 34½ cubic inches. We have seen that the average cranial capacity of the lowest savages is probably not less than *five-sixths* of that of the highest civilized races, while the brain of the anthropoid apes scarcely amounts to *one-third* that of man, in both cases taking the average; or the proportions may be clearly represented by the following figures—apes, 10; savages, 26; civilized man, 32.—*Essays by Alfred Russell Wallace: "Limits of Natural Selection as applied to Man."*

Now if one compares an English Premier with an Australian native that can hardly count his own fingers, from the point of view of *nature and natural selection*, what does the savage want with a brain equal in capacity to that of the European, and how came he by it? Here is a brain capable, under different circumstances, of performing work of an immensely different *kind* and *amount* from any that is now ever required of it?

Truly this Natural Selection must be something, or have something behind it, vastly "*wise* above what is written"! Such facts as these not only make conclusively against Natural Selection as the originator and developer of species, but as it seems to us, are hardly reconcilable with any theory of evolution at all. It is not to be forgotten that the *capacity* of all the culture of civilization exists in these lowest savages, even though in their present condition they may use hardly any higher faculties in procuring their subsistence than the animals around them. As the Bishop of Lichfield declar-

ed in a recent speech, entitled as he is to bear witness from thirty years' experience among the cannibals of New Zealand, no difference of race seems to present any barrier to the ready reception and easy understanding of Christianity wherever it is carried. The lowest savages give occasional manifestation of the latent capacities that belong equally to the human organism everywhere. As Mr. Wallace remarks, "some tribes, such as the Santals, are remarkable for as pure a love of truth as the most moral among civilized men. The Hindoo and the Polynesian have a high artistic feeling, the first traces of which are clearly visible in the rude drawings of the palæolithic men who were the contemporaries in France of the Reindeer and the Mammoth. Instances of unselfish love, and of deep religious feeling, sometimes occur among most savage races." Nothing could more clearly and convincingly establish the great gulf, *hiatus*, or "*saltus*" between man and the highest of the brute creation—a gulf that is not to be bridged over by a few indeterminate physical homologies. Though an evolutionist himself, Mr. Wallace concludes his observations on this branch of the subject by saying:

> The brain of pre-historic and of savage man seems to me to prove the existence of *some power*, *distinct* from that which has guided the development of the lower animals through their ever-varying forms of being.

Mr. Darwin does not call in his theory of Sexual Selection to meet these objections of Mr. Wallace as to comparative size of brain and mental development: he merely says that "man in the rudest state in which he now exists, is the most dominant animal that has ever appeared on the earth." But why the most dominant? It is for Mr. Darwin to prove that Natural Selection made him so. Instead of that he dismisses

the whole argument by merely saying "I can not therefore understand how it is that Mr. Wallace maintains that Natural Selection could only have endowed the savage with a brain a little superior to that of an ape." (*Vol. I, p.* 132.) Most certainly, because that was all that Natural Selection, *ex vi termini, could call for!* We hardly know an instance of more unsatisfactory dealing with a valid objection. Is not Mr. Darwin bound to explain on his principles why, as between the gorilla and the savage, mental activity in the latter has not grown *pari passu* with the size of the brain, and why the *gap* between the savage and the gorilla is *less* in mental activity but *greater* in size of brain than that between the savage and the civilized man? This is a *crux* to Mr. Darwin's whole system.

In regard to the physical resemblances in man to the higher apes, it would seem that M. Pruner Bey, in a paper for the Anthropological Society, which goes minutely into anatomical differences, points out, that independently of those differences in attitude, gestures, movements and aspect which so decisively class the ape among brutes, there are at least *three* characters common to all apes, that render them radically different from man. First is their hairy coat and the lack of that conformation of the hand and its tactile papillae which in man produces the geometric or *peripheric* sense: secondly, dentition, the ape having a canine tooth as a weapon of offence: thirdly, the direction of the axis of the body in its natural posture, horizontal in the ape, vertical in man, the arrangement of bones conforming to this direction in each case.

Marked points of difference also are observed in the muscular and circulatory systems, and the structure of the viscera, some apes being simply herbivorous. In the various apes the facial surface exceeds that of the

cranium, and the huge supraorbital crests contain nothing, but are a mere sign of bestiality. The eye is not placed below the brain, and its axis, instead of being horizontal is directed downwards and outwards, while the concave face and retreating chin produce a muzzle and tendency to prognathism. There are striking differences in the maxillary bones and teeth, and the internal mould of the cranium. He concludes that the ape differs anatomically from man not merely by degradation, but by *contrast* in every part; and that even from its first appearance in the Miocene age, judging from the mandible and the bones of the extremities, the ape has always presented the same characters as now.*

The next point noticed by Mr. Wallace as unexplainable on Mr. Darwin's theory, is the naked skin of man, in contrast to what obtains as a general law among the mammalia. Mr. Darwin thinks he has the inherited "rudiments" of this hairy coat: and speculates a little as to the possibility of his having *lost* it by exposure to heat, since elephants and rhinoceroses are hairless, while some extinct species that formerly lived in an arctic climate, had long wool: but how is it that the species of other mammals that have always lived in hot climates have long hair, and how should he know that the species that lived in arctic climates did not *acquire* their hair there, instead of *losing* it in hot climates? This is mere guess and presumption. But Mr. Darwin feels the force of the objection. He sees clearly enough that the principle of Natural Selection which is supposed to work always for the *good* of the creature, could never have eliminated this hairy coat in man (considered only as an *animal*) and above all, caused it to disappear more completely from the *back* (where he most needed it) than from any other part of the body, compelling the savages

* Cited in *Living Age*, No. 1363.

to resort to all sorts of ludicrous *un*dress, not from modesty, so much as to keep their backs and shoulders dry and warm. Mr. Darwin seems to be here in a position not unlike that of the great Philosopher when Diogenes threw in at his door a practical illustration of his scientific definition of Man as "a two-legged animal without feathers"! A new adjustment must be made—a new buttress put up where the building seems most likely to tumble down. To meet this and some other difficulties, therefore, Mr. Darwin has devised the theory of "*Sexual* Selection" which, as we have said, takes up the far larger portion of his last work.

Under this head Mr. Darwin includes the struggle between several males for the possession of a female, and the preference which may be exercised by the female for one male over another. The former case seems to imply about the same thing as Natural Selection, since the same advantages that would give an animal superiority in the "struggle for existence" would operate in his favor in the contest for a mate and the continuance of his species. In this case, at least, the choice of the female would have to correspond with the "choice of battle," and she would be essentially *passive* in the matter, submitting to superior strength herself. It seems to us in the highest degree absurd even on Mr. Darwin's principles of development, to attribute the acquisition of those organs or modifications in the male which give him greater swiftness to find and overtake the female, or greater facilities for "holding her securely" to any such cause as Sexual *Selection*. Mr. Darwin does not pretend that *primary* sexual characters can be derived from Sexual Selection, and he admits the difficulty of drawing the line between primary and secondary sexual characters. All that even his theory would bear, as it seems to us, is that *secondary* sexual

characters, such as mane, horns, wattles, &c., might be modified, but not originated by Sexual Selection. Besides it is difficult for us to see how weapons of offence or defence for "driving away their rivals" could have been developed by Sexual Selection, when the same weapons would be needed in the pursuit of prey or the struggle for subsistence. These sexual modifications, too, are so numerous and varied, the same taking place sometimes in one sex and sometimes in the other, that the subject appears rather confused, and hardly to admit of laying down such a definite law. There seems to be a law that the male should be the seeker, and more "eager," but this is not universal. Monogamy is the rule but polygamy is frequent. There is nothing in the theory to explain the exceptions and apparent contradictions. And then it appears too that Sexual Selection actually works *against* Natural Selection; for, it seems, we have the "development of certain structures, such as the horns in certain stags, carried to an *extreme* which as far as the general conditions of life are concerned must be strictly *injurious* to the male." Upon this we have the following incredible comment:

> From this fact we learn that the advantages which favored males have derived from conquering other males in battle or courtship, and thus leaving a numerous progeny, have been in the long run greater than those derived from rather more perfect adaptation to the external conditions of life. We shall further see, and this could never have been anticipated, that the power to charm the female has been in some few instances more important than the power to conquer the other males in battle. (Vol. I, p. 270.)

Here then we have Sexual Selection not merely supplementary to, but superseding Natural Selection.

Now surely the cause is unknown that determines the primary sexual characters of an animal: and some secondary characters are always developed where no Sexual Selection could have operated. It is easier to

suppose that *all* sexual characters are due to the same cause, than to refer some few particular instances to selection while leaving the greater number unexplained.

But the *modus operandi* of Sexual Selection, upon which Mr. Darwin principally relies, is that according to which the female exercises a preference in the selection of the male, the latter transmitting to his progeny of *his own sex* those qualities of plumage, colors, song, &c., which gave him the advantage in female appreciation. This, of course, is a *gradual* process like that of natural selection. His chief examples are from the class of birds; and to females of this class he really attributes a perception and sense of the beautiful—an æsthetic taste and nicety hardly developed in the most cultivated of what we have been accustomed to call *rational* and moral beings.

It is, of course, hard to prove a negative: all we can say is, that the affirmative is very far from being demonstrated. There is such an air of *uncertainty* about all Mr. Darwin's discursive speculations on this subject, that one feels he could cite facts out of such a vast field, if he chose, to prove almost any theory whatever, if he would only let the exceptions go without explanation. There are plenty of exceptions and apparent contradictions in this case, as we may gather from his own pages.

The variations in breeds of fowl are often spontaneous and sudden, and appear in either sex indiscriminately: and what is the reason, consistent with Sexual Selection, that some variations are "sexually limited" and others not? He can not conjecture why the tortoise-shell color in cats is developed in females alone, while pigeons, alike in a state of nature, under artificial breeding acquire sexual characters "even in opposition to the will of the breeder," which is evidence enough of some law of *spontaneous* development, *other* than that of Sexual

Selection. If the glow-worm has a light to attract her mate, so have luminous larvæ where there is no sexual action: and if stridulating noises in some male insects is proof of Sexual Selection, how is it when both sexes stridulate, as he states is the case with certain Neuroptera and many Coleoptera. In the case of butterflies, though he draws on them largely for proofs, he yet finds many instances where beauty seems of no account in pairing, and Dr. Wallace, with his experience in breeding silk moths, found no indications of choice or preference in the females. And yet these moths are beautifully colored. The numerous instances of combat among the males of species, from insects and fishes up to the higher orders, make directly against the operation of Sexual Selection. And notwithstanding these combats, it appears that the males of some species, as in the salmon, have become *smaller* and weaker than the females, which is only "surprising" to Mr. Darwin. So likewise in the case of horses, sometimes the caprice is on one side and sometimes on the other. In some monkeys the female excels in *colors*, while in other sexual characters the usual rule prevails. In such cases, Mr. Darwin supposes selection is reversed, which is a purely arbitrary shifting of ground. In all the illustrations cited, there seems only a kind of caprice or fancy, utterly uncertain and changeable, in each individual. How can such caprice result during long periods in the *constant* colors and other sexual characters sometimes of one sex, and sometimes of the other?"*

The feature of colors is conspicuously illustrated in the class of birds, which give Mr. Darwin his principal arguments. And here we find the same "law of battle" which certainly limits female "selection," if there

* See many instances cited in London *Quarterly Review*, July, 1871.

be any; and birds that fight have their varieties of *color* as well as others. In some cases, too, it is the female that courts, where the male sexual characters are as distinct as in other cases.

Mr. Darwin seems purposely to apply to the caprices and actions of birds a good deal of *moral* language, as if to assimilate them to human conduct; but he can give no more evidence that birds act in their courtship from human motives than that a bee builds its cells from a conscious knowledge of geometry as a science. Amidst all the wealth of facts of Natural history which he displays, there are many cases of *back handed* argument and inference, which make against his hypothesis rather than for it. Thus, among other facts to prove that birds *choose* plumage and colors, he gives the following:

> Sir R. Heron during many years kept an account of the habits of the pea-fowl, which he kept in large numbers. He states that the hens have frequently great preference for a particular peacock. They were all so fond of an old pied cock that one year when he was confined though still in view, they were constantly assembled close to the trellice-walls of his prison and would not suffer a japanned peacock to touch them. On his being let out in the autumn, the oldest of the hens instantly courted him, and was successful in her courtship. The next year he was shut up in a stable, and then the hens all courted his rival. This rival was a japanned or black winged peacock which to our eyes is a more beautiful bird than the common kind. (Vol. II, p. 115.)

Now this would not only throw the power of "Selection" over on the male side, but it would show that if there be an "æsthetic taste" in peahens, it is very different from ours. There was preference, no doubt, but was it due to either plumage or color?

As to the *displays* made by some birds, such as peacocks, pheasants, &c., the facts indicate that these displays are often made when no females are present, and

therefore can not have exclusive reference to exciting the sexual instinct. The great number of facts and illustrations which Mr. Darwin adduces, instead of establishing his special hypothesis, appear to us conclusively to point to something deeper and more potent than either Natural or Sexual Selection—to some as yet unknown law "in the nature and constitution of the organisms" which determines sexual characters, and their transmission, some to one sex and others to the other. Mr. Darwin himself must admit that *some* sexual characters are not due to Sexual selection: how can he prove that *any* are, till we know what produces the former? Among so many modifications and varieties of phenomena, it is difficult to limit the category of true causes. Mr. Darwin thinks the brilliant plumage, ornamentation, and song power of birds are due to the taste and preference of the female, operating in "Sexual Selection." What if we say, the strongest and most vigorous will surely obtain the females, and that their superiority in plumage and song is due to their greater vitality?

But brilliancy of color and ornamentation are found in abundance where there is no female taste or caprice to be pleased. There are organisms enough distinguished for these qualities, where Sexual Selection could not have operated: such as caterpillars and other insects, whose infinitely varied ornamentation Mr. Wallace refers to some "unknown cause quite independent of Sexual Selection." A writer in the *Edinburgh* also gives a striking illustration of beauty, independent of Sexual Selection.

> The gorgeous tints of a sea-anemone or of a coral, or the lustrous sheen on the hairs of a sea-slug or on the interior of an ear-shell, are as beautiful as the stripes of a tiger or the splendor of a bird of paradise. None could maintain for a moment that there is

the slightest difference between them as works of art. In some cases the design of coloring is the same in the higher and lower classes of the animal kingdom. In the cone-shell, for instance, the contrast between the black stripes and reddish background of the tiger's skin is exactly followed, and among the endless varieties of the cowry, some are ornamented with the same colors as some of the antelopes. It is only reasonable to account for this identity on the hypothesis that like results have been produced by similar causes, and that whatever may be the explanation of the colors of one class of organisms, ought also to explain the presence of similar colors in the other class. (*Ed. Rev.*, *July*, 1871.)

But Mr. Darwin is disposed to deny this, for what imaginable reason we do not see, and to attribute the colors of the lower orders of beings to *chemical* constitution, as in the case of forest leaves! This is too much like playing fast and loose with the facts of nature, or arranging them to accommodate a theory. We should be more inclined to say that colors in the lower orders, where there is no possibility of Sexual Selection, is proof that in the higher orders color and ornamentation are not due to *that* cause.

Moreover, if beauty were due to æsthetic preference, in a long course of Sexual Selection, it ought to be most conspicuous in those orders which have reached the highest physical and mental development, which is by no means the case. The microscope reveals forms and colors of beauty such as the keenest perceptions of human art could never have devised: and it is simply absurd to say that there is any mental power in the creatures themselves to appreciate their own wonderful structure and beauty. It is pure legend and mythology over again. Mr. Darwin limits beauty in the organic world to the mere purpose of reproduction: but this touches the merest fragment of Nature, which shows beauty in every detail of her operations, for what purpose, is not reached or even suspected by Mr. Darwin's theories.

If Sexual Selection thus fails to reconcile the phenomena of the lower orders, how is it to be accepted as explaining the development of man's peculiar bodily qualities, or the differences of races? If man was once quadrumanous, how did he acquire the habit of walking erect, and how did he acquire his present foot? Not by Sexual Selection, conceivably. And Mr. Wallace has shown, in the paper quoted before, that both the hands and feet of man could hardly by possibility have been developed from a quadrumanous ancestor, either by Natural or Sexual Selection. To what useful purpose was either the hairy coat or the prehensile power of the foot, and the opposable thumb taken away? Next to the human intellect it is the human hand that has made civilization possible: and all its marvelous powers are latent in the hand of the lowest savage that knows nothing of the requirements of civilization. So too with the human larynx and voice. All its powers are there, used or unused; and it is neither Natural nor Sexual Selection that reveals those powers under the culture of civilization. The organs of man, instead of being developed out of accidental variations according to the actual needs of his condition, bear all the indications of an *anticipation* of his future wants, and of having been prepared for a civilized condition, if not in *order* to make his civilization possible: but this is directly *against* Natural or Sexual Selection. And if the nakedness of man were due to Natural or Sexual Selection either, it should show something like gradation in animals next lower in the scale; whereas it is well known that there is no gradation in respect of hairyness at all, as the higher apes are much more hairy than some of the lowest monkeys.

In regard to the different races of men, Mr. Darwin's theory is by no means necessary to prove the unity of

mankind as a species. That is settled by physiological facts, as well as psychological. The differences of race are not enough to be tortured into an argument for, much less scientific demonstration of, alien species. One test, that of mutual fertility, which no two different species have yet shown to be deceptive, is fully met by all the different races of mankind.

Mr. Darwin, however, attributes differences of color, &c., to the mere *taste* of men and women in choosing their partners; for this is what Sexual Selection amounts to. Doubtless external change of conditions acts in the long run upon the human frame: and climatic conditions must go far to explain differences of race, independently of Sexual Selection, which may have been only one among many influences. If it were shown to be the *chief* influence, that would not help the hypothesis that man is descended from a lower order of the animal kingdom.

A writer in the *Edinburgh** calls attention to the experiments of Sir Everard Home, which show that "although a black skin absorbs more heat than a light colored skin, it also yields it up with much greater freedom and without blistering." This inclines him to attribute the color of Negroid races to the heat of the torrid zone. He thinks too, that such a variation might have appeared *suddenly*, instances of the kind being well known; in which case, however, they could not have been due to Natural Selection.

We now pass on to the psychological question, or the phenomena of the human mind. Professor Tyndal says, "It is a long way from the iguanodon and his contemporaries to the President and members of the British Association";† but Mr. Darwin believes that he has

*July, 1871. †Address before Sect A. of British Assoc.

traveled the whole of it. It may seem like presumption to attempt to approach the problem of consciousness from the side of mere natural history—the non-physical from the side of the physical, as if there were no barrier between them, or rather as if the distinction between them did not exist: but Mr. Darwin undauntedly attacks the question, in a manner that puts Philosophy under obligations to him for the conspicuousness of his failure. It is true that the "Physical" and the "Metaphysical" must always more or less interpenetrate each other's domains, as they always have done, since body and mind are in *some* way linked to each other: but though Materialists like Cabanis long ago thought to proclaim as their *Eureka* that "the brain secretes thought, as the liver secretes bile," yet philosophy has ever shown, what is gracefully acknowledged and eloquently set forth by Prof. Tyndal in the Address already quoted:

> I hardly imagine that any profound scientific thinker, who has reflected upon the subject, exists, who would not admit the extreme probability of the hypothesis that for every fact of consciousness, whether in the domain of sense, of thought or of emotion, a certain definite *molecular condition* is set up in the brain; that this relation of physics to consciousness is invariable, so that, given the state of the brain, corresponding thought or feeling might be inferred. But how inferred? It is at bottom not a case of logical inference at all, but of empirical association. You may reply that many of the inferences of science are of this character: the inference, for example, that an electric current of a given direction will deflect a magnetic needle in a definite way; but the cases differ in this, that the passage from the current to the needle, if not demonstrable, is thinkable, and that we entertain no doubt as to the final mechanical solution of the problem; but the passage from the physics of the brain to the corresponding facts of consciousness is unthinkable. Granted that a definite thought and a definite molecular action in the brain occur simultaneously, we do not possess the intellectual organ, nor apparently any rudiment of the organ which would enable us to pass by a process of reasoning from the

one phenomenon to the other. They appear together, but we do not know why. Were our minds and senses so expanded, strengthened and illuminated as to make us to see and feel the very molecules of the brain: were we capable of following all their motions, all their groupings, all their electric discharges, if such there be, and were we intimately acquainted with the corresponding states of thought and feeling, *we should be as far as ever* from the solution of the problem. "How are these physical processes connected with the facts of consciousness?" The chasm between the two classes of phenomena would still remain intellectually impassable. * * * I do not think the Materialist is entitled to say that his molecular groupings and his molecular motions explain everything. In reality they *explain nothing.* The utmost he can affirm is the association of two classes of phenomena of whose *real bond of union* he is in absolute ignorance. The problem of the connection of body and soul is as insoluble in its modern form as it was in the prescientific (?) ages. Phosphorus is known to enter into the composition of the human brain, and a courageous writer has exclaimed, in his trenchant German, "*Ohne Phosphor Kein Gedanke.*" That may or may not be the case; but even if we knew it to be the case, the knowledge would not lighten our darkness. On both sides of the zone here assigned to the materialist he is equally helpless.*

We know not what Prof. Tyndal's metaphysics may be, or whether he is not intentionally using the language of Positivism; but we cite this passage, as the testimony of an eminent physicist himself, that even supposing science had arrived at an understanding of all the physical phenomena associated with mental action, the chasm between them is still impassable; and therefore man's higher nature is not yet bound to be regarded as either essentially one with, or as a dependant result of his physical organism. The real difficulty between the natural scientist and the metaphysician is, that the former has no concern with or conception of *Will*, while the latter is not satisfied with those mere formulas of sequence called "*Laws*," but looks beyond into the question of *cause*, and *being*.

* Reprinted in "*Living Age*," November 21, 1868.

If man were placed, as a spiritual and immortal being, in the midst of, and *en rapport* with, an organic material creation, it would not appear but that he must, *ex necessitate rei*, partake more or less of its physical characteristics, while having that in him which could not be common to the rest. But Mr. Darwin boldly sets out in his second chapter that "there is no fundamental difference between man and the higher mammals in their mental faculties." This not only ignores the whole difference between higher and lower faculties of the human mind, but is a defiance of all the established elementary principles of philosophy, by which sensation is distinguished from perception, instinct from self-consciousness, and understanding from the reason. It is the same substantially as saying that if beavers and bees build, it is because they have knowledge of the principles of geometry and architecture, and could construct other fabrics if they chose. And yet Mr. Darwin admits that man has to *learn* his simplest operations "by practice;" while the beaver or bee or bird can build the first time as well as ever. Now it is utterly impossible for us to understand how Mr. Darwin reconciles this simple fact with his assumption that the difference in mental faculties between man and brute is only in *degree* and not in *kind*. We look in vain for the explanation. He says:

> The greater number of the more complex instincts appear to have been gained through the natural selection of variations of simpler instinctive actions. Such variations appear to arise from the same unknown causes acting on the cerebral organization, which induce slight variations or individual differences in other parts of the body: and these variations, owing to our ignorance, are often said to arise spontaneously. We can, I think, come to no other conclusion with respect to the origin of the more complex instincts when we reflect on the marvelous instincts of *sterile worker-ants and bees*, which leave no offspring to inherit the effects of experience and of modified habits.— *Vol.* 1, *p.* 37.

Here we have the unknown causes of variability resorted to again, which is a sheer confession that the subject is inscrutable: even as the explanation offered is unintelligible. To argue from mental actions to those of the brutes, is a temptation to import into the latter the self-consciousness of the former—to put upon them the *interpretation* of our own self-consciousness—to fall completely into the snare of that anthropomorphism against which these writers warn us.

If the higher mammals do not differ from us "fundamentally" in mental faculties, who can conceive that there should *now be any* higher mammals coeval with man? Why, then, should the cattle of to-day be no better—no higher advanced than the "slow-rolling-footed kine" of Homer, or the sacred bulls of the Egyptians? It is the duty of Philosophy to guard its own realm against this barbarous invasion of Materialism under the guise of physical science. We can do no more than demand and scrutinize the physical evidence for a theory that pretends to base itself on physical facts. We have no fear that the great and irrefragable difference between the Reason of man and the lower faculties of the *Understanding*, which has been recognized in all the high forms of human thought, from Plato down to Coleridge and Kant and Hamilton, is to be eliminated by a revolution that precipitates all philosophy into the "sty of Epicurus." Aristotle, as much as any inclined to look at the question from the physical side, finds a break in the "organic chain" at the reason of man, and though the lower animals have memory, and acquire empirical experience, they have no faculty of universal conceptions, such as *law*, out of which springs science itself, and therefore all arts among men. He expressly says, without any bias of "theology," "*It only remains for us to conclude that the intui-*

tive power in man has come upon him from without and is something only divine; for the physical force of the body has nothing in common with the force of spirit."—Generation of Animals, II. III. 10.

In his Metaphysics too, he profoundly suggests that while some faculties may be attained by exercise, there are others, such as *reason*, which we have *by nature:* and that, [so far from this having been *developed* by the struggle for existence or Natural Selection] the *reason* of man has been *retarded* in most nations by the claims of our lower nature, and animal necessities. How much more truly this observation of the great thinker of antiquity corresponds with the testimony of consciousness, experience and common sense! Reason is not the *effect*, but the *cause* of human civilization: man's development is not from a lower *nature*, but the evolution of that which he already had *in* his nature, which is latent, even where there is no *exercise* of it to be transmitted by heredity. As Mr. Darwin remarks in one of his earlier pages: "The Fuegians rank amongst the lowest barbarians: but I was continually struck with surprise how closely the three natives on board H. M. S. Beagle, who had lived some years in England and could talk a little English, *resembled* us in disposition, and in most of our mental qualities." Vol. I, pp. 33–4.

This similarity, or identity, he elsewhere remarks upon as observable between American aborigines, and Negroes, and Europeans, which "differ as much from each other in mind as any three races that can be named."

The writer in the *Edinburgh* already cited, makes a very clear elementary statement which shows the confusion in Mr. Darwin's assumption, that because things have certain characters in common, there can be no *fundamental* difference. He shows, what might be suppos-

ed to be obvious enough, that sensation is not thought, but only supplies the objects of thought. The lower faculties or characters that we have in common with brutes are what are called the *Presentative* or Instinctive faculties. First is the reflex action of the nervous system, giving rise to involuntary actions without the intervention of either sensation or thought. Second, is Sensation. Third, is sensible Perception—observation of sensible objects. Fourth, is Association of sensible perceptions, giving rise to ideas. These are all *indeliberate* operations implying no *reflective* or representative faculty. Now what distinguishes the mind of man is the possession of two other and further faculties: Self-consciousness and Reason, by which sensible perceptions are reflected on, recognized as our own, and we ourselves recognized as ourselves: and by which, reflecting upon our perceptions, we think *what* they are and *why* they are. Now the *instinctive* faculties, according to this classification, are as perfect in the lower orders of animals as in the higher; nay, in what Mr. Darwin would recognize as *reason*, even insects, such as worker ants and bees (that leave no offspring too) are *superior* to most of the higher mammals. And if these instinctive faculties are all that are possessed by the brute creation, then we should not expect to find among them the gift of *speech*, the power of *concerted action*, or the capacity of being *educated*, in the civilized sense of that word: to say nothing of the faculty of reflection or self-consciousness, and perception of the difference of truth and falsehood, right and wrong. Well, do we find these things there? Mr. Darwin gives innumerable *anecdotes*. But everywhere he goes on the supposition that *sensation* is the whole source of knowledge and ideas—that there is no higher mental power: no such thing as intuition, as different from sense-percep-

tion. Hence he recognizes no difference in *kind* between the highest mental faculties of man and the instinctive faculties of brutes.

The writer before alluded to unanswerably remarks, that "two faculties are distinct, not in *degree* but in *kind*, if we may possess the one in perfection without that fact implying that we possess the other also. Still more will this be the case if the two faculties tend to increase in an inverse ratio. Yet this is the distinction between the *instinctive* and the *intellectual* parts of man's nature." (*Ed. Rev., July*, 1871.)

Now unless Mr. Darwin can show that all the facts of his anecdotes could not be accounted for by the instinctive faculties of sensible perception and association, without calling in Self-consciousness and Reason, his whole argument falls to the ground. It is utterly impossible to conceive how our higher intellectual powers of ratiocination, abstraction, self-consciousness, and metaphysical insight could have developed out of the exercise of those mere instinctive faculties of brutes which pertain simply to animal wants.

As to the gift of language, Mr. Darwin thinks it a development from the irrational cries by which brutes, as well as man, express their bodily sensations of pain or pleasure. The gap can not thus be bridged over. The real question is constantly avoided. In his first volume one would suppose that he attributed language to man's higher intellect: in the second volume, in the "General Summary," he attributes "the large size of the brain in man to the early use of language." That man's intellect can use animal sounds or cries and put meaning to them which he can *describe* in other language, is far enough from the notion that language itself is derived from modification of those animal sounds. Max Muller accounts for variations of dialect

and forms of speech by a sort of "Natural Selection," but the origin of language itself he would not regard as nearly reached by any such theory. Mr. Darwin says it is not *incredible* that some unusually wise ape-like animal should have *thought* of imitating the growl of a beast of prey, so as to inform his fellow monkeys: but some birds articulate certain sounds: is there any approximation in that to the use of words as expressing ideas in the mind, and the choice of words according to those ideas? The mere association of sense-perceptions does not begin to supply that power of abstraction which moulds and advances language, and thus makes language an effect of intellect instead of a cause of it. What is called this "*bow-wow*" theory of language runs on too low a plane to touch, much less to explain, the philosophical relations between human speech and human thought.

And as to the instances of concerted action among animals, by which of course is not meant mere gregariousness or association of kind, but mutual understanding and alliance, Mr. Darwin will have to convince us of the historical reality of Æsop's fables, or adduce something literally like them, before he can get beyond the mere phenomenon of associated sensible impressions which belong to instinctive faculties alone. His "unusually wise, ape-like animal," however, seems, as a matter of fact, never to have been realized. He declares, moreover, that "the fact of the higher apes not using their vocal organs for speech no doubt depends on their intelligence not having been sufficiently advanced," and he adds that their case is paralleled by many birds which have organs fitted for singing, but never sing. What then has become of that *development* by Natural Selection of those mental feelings and faculties in the lower animals which Mr. Darwin regards as a sufficient

explanation of the origin of intelligence? If they have all the necessary rudiments of our own intelligence, it is hardly satisfactory to be told that their development has stopped for lack of intelligence.

In summing up this subject of mental homologies, it is worthy of remark that the cultivation of the mental faculties, the lower class of which, those that pertain to mere sense-perception or the understanding, we have in common with the brutes, is that which writers of this scientific school seem to regard as the chief purpose and meaning of *education*, as they use the word. *Knowledge*, especially of the facts of nature, is their panacea for the evils and discomforts of the world, while, in fact, by itself considered, it may be justly regarded as putting man on that same line of mere animal development as the *rest* of the brute creation. There is doubtless such a thing as so training men, as if man were nothing but an animal, and thus making the Darwinian theory a practical fact. But none the less is it true, that man has that in him which is capable of higher and better things, if he will but see and recognize the teachings of his moral and spiritual nature.

No wonder, then, that Mr. Darwin regards this, the ethical side of humanity, as the last and most difficult fact to be reduced into harmony with his materialistic theory. Conscience or the moral sense, the ideal of right and wrong, the notion of responsibility, the sense of duty, the belief in the supernatural,—these are things hard to be developed out of the mere physical progress from the mollusc to the mammal.

The sense or belief of the supernatural, Mr. Darwin attributes to "the faculties of the imagination, wonder and curiosity, together with some power of reasoning" craving to understand what is passing around us, and "vaguely speculating on our own existence." Here he

brings in those faculties of reflection and self-consciousness for which the mere instinctive faculties common to us with brutes were utterly inadequate to account. This gap he ignores: and goes on to compare our feeling of religious devotion, to the state of mind in a dog that shows "a deep love for his master, associated with deep submission, some fear and perhaps other feelings:" and to the feelings of "a monkey returning to a beloved keeper."

It is hard to keep patience with this sort of argument. Does Mr. Darwin intend here to reason from dog to man or from man to dog? In either case it is an arbitrary resemblance *projected* from his own mind. Is there a *belief in the supernatural* in both cases? He speaks of the "high mental faculties which first *led man to believe* in unseen spiritual agencies, then in fetichism, polytheism and ultimately in monotheism" as also leading him while the *reasoning* powers were poorly developed, into "the terrible superstition of sacrificing human beings to a blood-loving god: of ordeal by poison, or fire," &c. Now what has become here of evolution by a beneficent Natural Selection which accumulates only advantageous variations? Mr. Darwin compares this sort of thing to the "occasional *mistakes* of instinct in the lower animals!" and speaks of the infinite debt of gratitude we owe to the improvement of our reason, to science, &c., that is, we suppose, to the inflexible chain of our evolution!

We shall not pursue the bearing of this most extraordinary view on the question of any Theism at all.

As to the origin of our ideas of right and wrong, Mr. Darwin finds the theory of Utilitarianism most convenient for his purpose. His explanation is, in brief, that they are the accumulations by natural selection of man's experience of what is *useful* or what is injurious

in all actions. With Herbert Spencer, Stuart Mill, and Sir John Lubbock, he may admit that the notion of *right* has become at last detached or dissociated from a conscious experience of the useful, but such he maintains is its *origin.* Mr. Mivart has so thoroughly exposed the fallacy of all this reasoning, in his IXth chapter, that his readers can not but join heartily in his remark, that "Hasty and incomplete observations and inductions are prejudicial enough to physical science, but when their effect is to degrade untruthfully our common humanity, there is an additional motive to regret them." Mr. Darwin finds among some savages an "abhorrence" of incest, and argues that it arose from experience of its evil effects, which experience produced a sense of its pernicious nature which has been *inherited.* But so far from showing that offspring can inherit what their parents never had, he does not even account for those "spontaneous variations" by which it often happens that descendants lose what their parents did have. Besides, can he show the least trace of such an idea among brutes —say even the highest of his higher apes? The ideas of right and utility are so far from being identical, that in the experience of mankind they have often proved most *antagonistic* to each other. Mr. Darwin himself, in one of his books of Travels, refers to a custom of the Fuegians to kill and eat their old women—a highly *useful* act in their view, as both increasing their scanty supply of food, and diminishing the number of mouths for its consumption. Such would be the morality and benevolence developed by a purely material, unmoral natural selection.

It is certainly a striking admission of the absoluteness of innate moral intuitions that Mr. Mivart points out in one of these writers of the utilitarian school—Mr. J. Stuart Mill, in his remarks on Sir William Hamilton's

Philosophy. Mr. Mill says: "I will call no being *good*, who is not *what I mean* when I apply that epithet to my fellow-creatures; and if *such* a being can sentence me to hell for not so calling him, to hell I will go." This is diametrically opposed to the utilitarian theory, and asserts the absolute character of our moral intuitions. It is clearly shown, too, that such a maxim as "*Fiat justitia ruat coelum*," could never have been compatible with, much less evolved out of, a utilitarian source. The elementary distinction also between acts *materially* moral and *formally* moral, is one that utterly annihilates the figment of an origin in utility. The actions of animals that *simulate* morality, are merely the *association* of sense perceptions of pleasure and pain with certain acts, and belong to our lower nature. There is nothing *moral* in the mere expectation of reward or the fear of punishment as associated with certain external acts. We feel that the *moral* quality attaches only to *conscious choice*, and can exist only in a being that is a free agent. These two correlative ideas, *spontaneity* and *responsibility*, can not be accounted for on any system of mere materialism. They utterly refuse to attach to any mere natural process, governed by physical laws. And yet even Mr. Mill bears vehement witness to an absolute ideal of right and wrong and the absolute independence of the human will,—even as against omnipotence itself. He more than realizes the old Promethean invincibility—

> "Nor stony tower, nor walls of beaten brass
> Can be retentive to the strength of spirit."

Both men and brutes then can perform acts that are *materially* moral, as in the care of offspring, "retrieving," &c.; but they do not approximate the *formal* morality, without conscious volition and choice. As

Mr. Wallace remarks, the utilitarian hypothesis could never account for that peculiar *sanctity* which even savages attach to what is absolutely *right* as contrasted with the feeling which is connected with what is only *useful.* The utilitarian theory is simply the Atheistic substitute for the Moral rule of Theism. Mr. Lecky, who has with great ingenuity followed up the subject of Morals from the side, so to speak, of its Natural History, as Mr. Darwin has the question of the origin of man, finds ample reason to combat vigorously the utilitarian views of Bentham, Mill and Herbert Spencer. In his able and interesting work on this subject, he describes the intuitive theory of morals as confirming these two propositions: 1st., that our will is not governed by the law of pleasure or pain merely, but also by the law of duty, which we feel to be distinct from the former and to carry with it the sense of *obligation;* 2d., that the basis of our conception of duty is an *intuitive perception* that among the various feelings, tendencies and impulses that constitute our emotional being there are some that are essentially good and ought to be encouraged, and some which are essentially bad, and ought to be repressed. This is regarded as simply a "psychological fact." And as to the utilitarian theory directly, he says:

> When moralists assert that what we call virtue derives its reputation solely from its utility, and that the interest of the agent is the one motive to practice it, our first question is naturally how far this theory agrees with the feelings and with the language of mankind. But if tested by this criterion there never was a doctrine more emphatically condemned than utilitarianism. In all its stages and in all its assertions it is in direct opposition to common language and to common sentiments. In all nations and in all ages the ideas of interest and utility on the one hand, and virtue on the other, have been regarded by the multitude as perfectly distinct, and all languages recognize the distinction. The terms honor, jus-

tice, rectitude or virtue, and their equivalents in every language, present to the mind ideas essentially and broadly differing from the terms prudence, sagacity and interest. The two lines of conduct may coincide, but they are never confused, and we have not the slightest difficulty in imagining them antagonistic. When we say a man is governed by a high sense of honor, or by strong moral feeling, we do not mean that he is prudently pursuing either his own interests or the interests of society. The universal sentiment of mankind represents self-sacrifice as an essential element of a meritorious act: and means by self-sacrifice the deliberate adoption of the least pleasurable course without the prospect of any pleasure in return. A selfish act may be innocent, but can not be virtuous, and to ascribe all good deeds to selfish motives, is not the distortion but the negation of virtue. (*Hist. of European Morals*, Vol. I.)

Mr. Wallace's argument on this point is one that never has been, and can not be answered. He takes an example from the intuitive sense that all men have of the moral difference between truth and falsehood.

The utilitarian sanction for truthfulness is by no means very powerful or universal. Few laws enforce it. No very severe reprobation follows untruthfulness. In all ages and countries, falsehood has been thought allowable in love, and laudable in war: while at the present day it is held to be venial by the majority of mankind in trade, commerce and speculation. A certain amount of untruthfulness is a necessary part of politeness in the East and West alike, while even severe moralists have held a lie justifiable to elude an enemy or to prevent a crime. Such being the difficulties with which this virtue has had to struggle, with so many exceptions to its practice, with so many instances in which it brought ruin or death to its too ardent devotee, how can we believe that considerations of utility could ever invest it with the mysterious sanctity of the highest virtue—could ever induce men to value it for its own sake, and practice it regardless of consequences? (*Limits of Natural Selection, &c.*)

Conscience, Mr. Darwin reduces to a conflict between social and personal instincts, the former, as concerned with the general good in the long run, being the more

persistent, and the latter, as pertaining to the individual merely, being but transient. He illustrates the feeling of *remorse* in this way:

> Swallows at the proper season seem all day long to be impressed with the desire to migrate; their habits change; they become restless; are noisy, and congregate in flocks. Whilst the mother bird is feeding or brooding over her nestlings, the maternal instinct is probably stronger than the migratory; but the instinct which is more *persistent* gains the victory, and at last, at a moment when her young ones are not in sight, she takes flight and deserts them. When arrived at the end of her long journey, and the migratory instinct ceases to act, *what an agony of remorse each bird would feel*, if from being endowed with great mental activity, she could not prevent the image continually passing before her mind of her young ones perishing in the bleak north from cold and hunger. (Vol. I., p. 87.)

And yet, shortly after, Mr. Darwin says "the essence of an *instinct* is that it is followed independently of reason." But can we attach any moral quality to an act that is performed "independently of reason?" A man may suffer an agony of sorrow at an accidental homicide, or some other act, it may be, merely instinctively performed independently of reason; but would there be no difference between this feeling and that which a rational being would experience after committing murder or any other deliberate crime? Mere regret for a misfortune can never develop into remorse for a crime. How did the law obtain its distinction between *malum in se* and *mala prohibita* except from the intuitive moral sense of mankind? Mr. Darwin lays much stress upon the social standard of the "Law of Honor." To this point a writer in the *Quarterly* puts a telling example of the principle that it is *judgment*, not *feeling* which has to do with right and wrong.

> What quality could have been more useful to social communities than courage? It has always been, and is still, greatly admired

and highly appreciated and is especially adapted, both directly and indirectly, to enable its possessors to become the fathers of succeeding generations. If the social instinct were the basis of the moral sense, it is infallibly certain that courage must have come to be regarded as supremely good, and cowardice to be deserving of the deepest moral condemnation. And yet what is the fact? A coward feels probably self-contempt and that he has incurred the contempt of his associates, but he does not feel "wicked." He is painfully conscious of his defective organization, but he knows that an organization, however defective, can not in itself, constitute moral demerit. Similarly, we, the observers, despise, avoid or hate a coward, but we can clearly understand that a coward may be a more *virtuous* man than another who abounds in animal courage. (*Quarterly*, July, 1871.)

Mr. Darwin speaks in several places of the standard of conscience—or the struggle of *instincts*—rising "higher and higher." Now what is it in us that enables us to *judge* of such "standards" in this way? How can we look at these questions from *without*, if we are but developed brutes, and all our faculties developed instincts? It is inconceivable that we should thus pass judgment upon ourselves, when self alone must be the highest "standard" we should know in the universe. Social instincts may lead to certain rules and customs: but they can never rise into the atmosphere of that moral sense which pronounces a judgment upon the secret motives of the individual, perhaps entirely different from the social verdict.

Mr. Darwin would appear in some cases to be guilty of a mere play upon words. Thus, he says "the imperious word *ought* seems merely (?) to imply the consciousness of the existence of a permanent instinct either innate or partly acquired, serving him as a guide, though liable to be disobeyed. We hardly use the word *ought* in a metaphorical sense, when we say hounds ought to hunt, pointers to point, and retrievers to retrieve their game. If they fail thus to act, they fail in their duty,

and act *wrongly!*" Why could not Mr. Darwin go on to explain what the hunter should mean when he says that his patent double-barrel, being properly constructed, *ought* to carry so many yards?

It is this plausible confusion of ideas, in very many instances, that serves the place of argument. Where did natural selection in the history of the race ever develop the principle of returning good for evil, and loving our enemies? And yet when propounded even to the moral sense of savages, there is that in man which recognizes the truth and beauty of the standard higher than human nature has practically attained. While Mr. Darwin traces the moral sense to social instincts, he founds the social instincts upon the parental or family affections: but as to the origin of these last, he expressly says "it is hopeless to speculate." It would have been more reasonable to reach that conclusion at an earlier stage of his hypothesis.

Philosophy must enter its protest against this very crude and unsatisfactory invasion by a mere naturalist of the realm of psychology and ethics. It can not be shown that we could ever have attained the perception, much less the comprehension, even of the material world, without some innate ideas logically antecedent to all sensation—ideas which place us above the material world, and enable us to analyze and judge of it. No stream can rise higher than its source. If man's mind is but a material evolution, there is nothing but mechanical motion in the universe, and no place for aught else. But volition, reflection, self-analysis, abstraction, the grasp of universals, spontaneous voluntary action and moral judgment—all these are *facts*—if not *phenomena* in the sense of the naturalist, they are *noumena* in the sense of the metaphysician. If the philosophers of old erred in interpreting nature by the light

of the human reason, it was a better mistake than attempting to interpret the human soul by mere physical laws, and making a "fetish" of natural science; as if there were not more things in heaven and earth than are dreamed of in the philosophy of mere naturalists.

In the zoölogical, psychological, and ethical analysis of man, Mr. Darwin's theory is found radically defective —notably in the last. There are few readers, it seems to us, who would not go along with Mr. Wallace in the inference which he draws from the facts that are not to be accounted for by Natural Selection, or hardly by any form of evolution:

> The inference I would draw from this class of phenomena is, that a *superior intelligence* has guided the development of man in a definite direction and for a special purpose, just as man guides the development of many animal and vegetable forms. The laws of evolution alone would, perhaps, never have produced a grain so well adapted to man's use as wheat and maize; such fruits as the seedless banana and bread-fruit; or such animals as the Guernsey milch-cow or the London dray-horse. Yet these so closely resemble the unaided productions of nature, that we may well imagine a being who has mastered the laws of development of organic forms through past ages, refusing to believe that any new power had been concerned in their production, and scornfully rejecting the theory that in these few cases a controlling intelligence had directed the action of the laws of variation, multiplication and survival, for his own purposes. We *know*, however, that this has been done, and we must therefore admit the possibility that, if we are not the highest intelligences in the universe, some *higher* intelligence may have directed the process by which the human race was developed, by means of more subtle agencies than we are acquainted with.—*Limits of Nat. Selec., &c.*

How Mr. Darwin can controvert this inference, we see not. He certainly should be the last to object to it; for his illustrations and his arguments for Natural Selection are all primarily drawn from the variations produced by man's intelligence in the breeding of ani-

mals under Domestication. The idea of an *unconscious* intelligent organizing force is unthinkable. If there is such a power under the phenomena of the world, it has all the characters of a personal will; and it is perfectly certain that at the extreme end of the minutest and most elaborate research, we are confronted with two principles which point to a Truth, which science may choose whether to embrace or to stop short of it: and those two principles are causality and the conservation of force: and that Truth is, the existence of a Personal Agent who operates the phenomena of the universe. If making the will a *cause*, after the analogy even of our own physical actions, is *anthropomorphism*, then what right have we to attempt *any* explanation of the phenomena around us, or what confidence can we have in such explanation? But if we know that we understand the phenomena as they *are*, by the same token we may believe that *we are made in the image of the Maker*.

CASE OF PIERCE.—PLEA, INSANITY.

What is Mania Transitoria? Who are Liable? How Should it Affect Jurisprudence?

BY S. T. CLARKE, A. M., M. D.

At a special term of Oyer and Terminer for Niagara County, N. Y., Daniels, Justice, the verdict "not guilty" having been rendered in the action of *The People vs. Aratus F. Pierce*, defended on the plea of insanity, (mania transitoria,) makes the foregoing questions pertinent at this time.

The writer of this article, having been called by the defence to listen to all the testimony in the case, after

careful examination of the authorities, aided by his somewhat limited experience, endeavored to answer the first and second of these questions, upon the witness stand; and, believing other cases will, and ought to be influenced by this one, desires to present the principles evolved, in a permanent and convenient form, and to answer the last question.

The following item from the Lockport *Times* gives a sufficient outline of the case for our present purpose:

THE CASE.

The circumstances connected with the shooting of William Bullock, by Aratus F. Pierce, in this city, on Saturday night, March 11th, 1871, are still fresh in the minds of the public. Pierce, it seems, has a sister Hattie, with whom Bullock had for some time been quite intimate, and it is alleged there was a promise of marriage between them. Bullock, it is further alleged, under promise of marriage, seduced the young woman, and then neglected or refused to perform the promise. When the consequence of their intercourse became apparent to Miss Pierce, her lover showing no disposition to consummate their marriage, she made known the condition of affairs to her mother. Aratus was at that time an employè of the great mercantile firm of Field, Leiter & Co., Chicago. Aratus came to this city and had an interview with Bullock at the house of Pierce's father. From that interview they proceeded down town together, and about 10 o'clock in the evening reached the corner of Main and Pine streets, where they had some further talk, which ended in the shooting, the arrest of Pierce, and the subsequent death of Bullock.

None of the facts in the case were disputed by the defence, and the indictment for murder was fully sustained by the prosecution, excepting *malice prepense*.

The defence was put solely on the ground, that the prisoner was, at the instant of shooting, in the condition of mind known as *mania transitoria*. We quote from the learned Judge's charge to the jury.

Which of the witnesses who have given their opinions as to the defendant's mental condition is most probably correct, is for you

to determine in view of all the other evidence given in the case, having a bearing upon this point, and in reaching a conclusion upon it you will also consider what has been read in your hearing from the books quoted by counsel on the subject of temporary insanity. It has been claimed that the mind may be so far affected by what is called moral insanity, as to render the person irresponsible while in that condition, for the acts he may commit, and which would be otherwise criminal. This arises from the moral feelings losing their repugnancy to acts criminally wrong, or from an uncontrollable inclination to commit such acts. This case does not depend upon the existence of such a derangement; but when persons are attempted to be shielded from the criminal consequences of their acts by the affirmation that by the indisposition to submit to salutary restraints, or the licenses they may have been permitted to assume, their passions have become ungovernable, or the moral feelings so deranged, as to lead them to an indiscriminate course of crime, either in the wanton destruction of life or property, the safeguards provided for the security of society will require that the courts shall overrule the attempt, and hold persons so depraved to be, as they certainly are, criminals of a deeper dye than those ordinarily required to be dealt with by the public authorities.

The defence in this case rests upon no such grounds as that, but it proceeds upon the idea that the defendant was so far deprived of sense and reason as not only not to entertain, but to be incapable of entertaining, the criminal design required to constitute the offence charged in the indictment, or any other offence whatsoever. If this evidence leads your mind to that conclusion, then you must acquit the defendant; but if you are not satisfied that such was the state of his mind, but are satisfied he had no design to kill the deceased, but assailed him in the heat of passion, on the provocation he received, and without intending to do so produced his death, then the defendant is guilty of manslaughter in the third degree, and that should be your verdict. As to his guilt, the prosecution must satisfy you, beyond a reasonable doubt, before you can convict of either offence. This doubt is not a mere possibility that he may be innocent, but it is such a state of the mind as after fully examining the entire mass of the evidence, and giving its proper weight to each portion of it—after all, it fails to leave an abiding conviction of guilt. If that be the state of your minds, the defendant is entitled to its benefit; and, by giving it to him, it must lead to his acquittal. If, however, you are satisfied of his

guilt to the extent that you have no reasonable doubt on the subject, then your duty to society, as well as the oaths you have taken, require you to convict him.

This theory of defence was originally suggested to the mind of the able counsellor charged with this duty, by the first, and every subsequent narration of the prisoner, who could minutely remember all the circumstances, up to the fatal moment, and then, he declared, everything was a blank, until he found himself under arrest. He persisted that this was the case, while he supposed that he would be defended on the ground of justifiable homicide; for the plan of the defence was never disclosed to the prisoner until the people rested. This point in the case being presented by the prisoner's counsel to a physician of great learning and long years' experience among the insane—in fact, to the highest authority in this State on psycho-medical subjects, he learned that it was not only possible, but highly probable, that the prisoner told the truth.

The evidence established these facts: The high moral tone of the prisoner's character; the absence of malicious, vindictive and querulous habits; his great personal purity; that even in the army he gained for himself the *sobriquet* of "virgin of the battery;" his unusual affection for his only sister; noticed and remarked not only by parents and friends, but by employers, neighbors, business men upon the street, and even strangers—a love such as Rauch, in his *View of the Human Soul*, p. 328, calls: Perfectly pure and free from all selfish motives, called by the Greeks a divine *love*, resting upon a divine law, and when, as related by Sophocles, it comes in contact with the human statute of Creon, Antigone *fulfills the former though the latter be broken.*

It was farther proven, that no premeditation could

have existed, in that, the day before the act, he arranged with the father of his affianced for his daughter's hand, the marriage to take place in a few weeks; that he telegraphed his employers to expect him on the 13th; that the *victim* invited the prisoner to walk down street with him, *and not the reverse;* that it was only at his sister's request that he put on his overcoat, *in which was the pistol;* that he had been in the habit of carrying a pistol *always* when traveling.

Insanity was shown to have existed in both the families of father and mother. A maternal uncle died insane in the Asylum at Utica; two maternal aunts died at their own homes, either the victims of epilepsy or melancholia, and his mother was shown to be hysterical, capricious and unbalanced; while an aunt of his father was confined as a dangerous lunatic for twenty years before her death. It was farther shown that the prisoner had inherited the same temperament as his mother, and his uncle who died insane. The testimony of the neighbors and of the family physician, showed, that the evening of the shooting, the prisoner frequently wept, paced the floor, wrung his hands, repeated an irrelevant question a dozen times in a half hour, and arose from and sat in his chair alternately as often during the same time, exhibiting all the characteristics of *mental shock*,* as described by Blanford, who says: "The reception of a mental shock causes immediate activity of brain, rapid molecular change in the centres, and, in consequence, a determination of arterial blood

* The prisoner, being sworn, testified: That he had no knowledge of his sister's condition until he returned from Chicago on Wednesday before the homicide; and that he still believed Bullock would marry his sister, until on parting, in answer to Pierce's oft-repeated question, What shall I tell my sister? Bullock replied, "Go to hell!"

to the brain. Even muscular structures may be set in motion, and this involuntarily. Very likely there will be trembling, or sobbing, or crying. The sufferer may pace the room, or rock himself, or wring his hands. All such acts imply a continued change going on in the centre; and they also imply a want of controlling power." (See *Insanity and its Treatment*, p. 50.)

It might have been shown that the prisoner had not slept an hour in seventy-two.

The medical testimony called in this case, did not agree as to the possibility of such a condition as mania transitoria. Dr. McCollum, and the writer, declared such a condition recognized by authorities, naming Dr. Maudsley, in *Journal of Mental Science*, vol. ix. p. 336; Castelnau, *Med. Leg.*, xiv. 438; Ray, *Medical Jurisprudence of Insanity*, § 149, § 150, edition of 1871; Bucknill, on *Lunacy*, [2,] [5,] [134;] Taylor's *Medical Jurisprudence*, chap. lxiii; Dr. Jarvis, *Journal of Insanity*, vol. xxvi. No. 1, &c. We defined this state of mind to be an instantaneous abeyance of reason and judgment, during which period, whether it be longer or shorter, the individual would be actuated by mad and ungovernable impulses; that its first manifestation would usually be an act monstrous, unpremeditated, motiveless, and entirely out of keeping with the previous character and habit of thought of the person. It would be preceded by some mental strain or agitation culminating in a sudden mental shock. It would probably be transient in proportion as it was violent, and the transition would most likely occur on the completion of the act of violence. The person so affected, should he commit a homicide, would be likely to justify the act, or fail to remember it; but would *very rarely* attempt to conceal his work, or fly from punishment.

We farther claimed that it would most likely occur

in individuals who were predisposed to some form of insanity, and the person most likely to inherit, would also present a mental and physical constitution *similar* to that branch of his family in which the hereditary taint descended.

It is the *Vesania anomala* of Sanger and Retzen; the *Bewilderment* of Ideler; or *Paranœa* of Weiss, suddenly occurring, in those who are so constituted, as to stand on the boundary line that divides between a sane and insane condition, who are only waiting some ecstatic joy, terrible and overwhelming sorrow, an embolism from the heart, a spasm of a cephalic artery, or even a failure in the vital impulse, to carry them over that line.

The microscopic character of the cerebral substance has not yet been sufficiently studied in health or disease, to enable us to say *what the pathological change is*, when a person becomes *suddenly* and *transiently* insane; or, what morbid appearances we should observe in the brain structure of one who had inherited an organization predisposing him to insanity. But, says Blanford, in speaking of general paralysis without hypertrophy: "There is also a condition of the small arteries and capillaries not coexistent with hypertrophy, but, on the contrary, found where the latter is not, yet apparently brought about by the same cause, *an extreme varicosity of the capillaries*, a *kinking* and *twisting* with *dilatation*, as if, at some period, there had been so great a rush of blood that the vessels could not carry it on, but had become distorted in the attempt." *Who shall say that this abnormal varicosity, in a greater or less degree, is not the congenital condition of those who inherit the insane tendency?*

After the defence rested, the prosecution called an expert, Dr. Cook, Superintendent of the Insane Asylum

at Canandaigua, who denied, on general principles, the possibility of any one, being sane a moment before the commission of an act, insane during the act, and sane the moment after. He did not think the condition of the prisoner, as described by the family physician and others, together with his hereditary tendency to insanity, his former blameless life, and the sudden and terrible shock that he had sustained, would warrant *him* in saying that the prisoner was *insane* when the act was committed. He also thought much complication of opinion had arisen on this subject from the careless definitions of authors.

The jury charged with the responsibilities of this case were of more than ordinary intelligence, and a number of them men of fine cultivation. The trial was most admirably conducted on both sides, and the ruling and charge of the judge impartial and dispassionate. The jury returned the verdict of acquittal after having the case *one* hour. It was received by the community with the most hearty approval, and the strong public sentiment in the prisoner's favor, undoubtedly should not be entirely overlooked in estimating the effect which the testimony had upon the minds of the jury; while at the same time it does not appear that any of the strictest requirements of the ordinary rules of court were infringed, or that any juror was influenced other than by the most conscientious adherence to his oath. No principle in criminal jurisprudence has led to greater embarrassment than this, that the law holds inflexibly an individual either *wholly* responsible or irresponsible for his actions; for, until recently, to plead or argue imperfect responsibility was discountenanced.

The high moral culture of American jurors, and the extreme dread of lowering the standard of morals, has

not only given rise to the most rigid verdicts, but to precisely the reverse; and, until we receive from the hands of our law-makers, the same latitude as is given to French jurors (and owing to their great moral laxity, constantly abused by them)—the power to bring a verdict of guilty with extenuating circumstances—we shall continue to have repetitions of verdicts, untempered with mercy, or, mercy being regarded, justice left out of the question.

The legal responsibility, of persons in whom there exists an hereditary tendency to insanity, is still a vexed question, and, while we are entirely unwilling to establish the precedent, that all criminals are insane, we are bound by the love we bear humanity, to investigate thoroughly the relations which these unfortunate individuals hold to society, and to give them the benefit of all the extenuation, which their peculiar diathesis warrants.

That there is a great difference in the mental constitution of persons who are unquestionably of sound mind, no one will dispute. This is most discoverable in cases of disease attended with delirium; one man is wild and incoherent during every paroxysm of fever; another may die with the intellect unclouded and undisturbed.

Those individuals who are predisposed to insanity, are not to be considered in the class of those who commit crimes while laboring under an attack of *mania a potu*, for the drunkard is supposed to be sane when he takes into his system a toxic agent, which he knows will deprive him of his reason and judgment; but the law has always recognized the fact, that ignorance of the effects of alcohol, opium and other drugs affecting the intellect, changed the moral relation of the individual to society; and surely the insanely-predispos-

ed are more nearly related to the latter, than the former class.

It is surprising, that medical men who believe insanity to be a disease of the brain, deny the possibility of the existence of a class of persons, who from being *ill-begotten*, are perpetually passing from the sane to the insane condition, nor does the admission of this fact, place us in the drag-net, where, like the Baron of the Exchequer we are forced to say, "that, if we are all madmen, we must do the best we can under such untoward circumstances." (*Bucknill.*) For these predisposed cases do not often *include* real moral delinquents, and we ought always to *exclude* those, who from a natural or acquired love of evil, are never so wicked or malicious, as when fully in possession of all their faculties. God himself has settled the question of their indictability and culpability in once drowning the greater portion of the human race, when "the thoughts of their hearts were evil, and only evil and that continually." (*Gen.* vi., 5.)

It seems to me, that in all cases of which this—People vs. Pierce—is a type, not only should the medical expert require strong proof of hereditary tendency in the case, but the former good character of the prisoner, absence of all premeditation, evidence of preceding mental excitement and perturbation, culminating in shock, before the criminal act *itself*, should be admitted as *evidence*, that it was committed while reason and judgment were in abeyance.

Again, we find in the history of certain cases of moral insanity, where the homicidal impulse has appeared with something like regularity or periodicity, the unfortunate subject of the malady, having timely warning, has announced the approach of the paroxysm, and, not only suffered his friends to restrain him, but begged to be

restrained, knowing that he would shortly have no power to govern himself, and, when the period of remission comes on, thanking God that another frenzy had passed, and no deed of violence been committed. (*Ray et al.*)

It follows, therefore, that every individual, with the insane predisposition, who has ever labored under an attack of Mania Transitoria, should be required to avoid all exciting causes, and to hedge himself about with all possible protections against recurring attacks; and, doubtless, in the event of a *second plea of Mania Transitoria in defence of the same person charged with a capital offence*, the question would be properly raised; *whether the individual, knowing his unfortunate mental organization, had so avoided causes likely to provoke the insane state, and had as thoroughlg deprived himself of the facilities and opportunities for committing crime, as his former warning would suggest, and his circumstances permit.*

Pertinent to this point is the language of Dr. Maudsley in the *Lancet*, August 12th, 1871. He says: "No person predisposed to insanity should be considered as a helpless victim to his fate. A man can, to a certain extent, by sheer force of his will, make his character grow to the ideal he sets before himself, and, undoubtedly, a great deal is to be done for the careful mental training of those predisposed toward insanity. The insane themselves, it is well known, have, at times, a great power of control over their actions; and, *à fortiori* those who are merely predisposed towards insanity, should be likewise able to exercise this control. Unfortunately, as a rule, children with an hereditary taint are always worse managed than other children, and are, therefore, doubly cursed."

OPHTHALMOSCOPIC EXAMINATION OF SIXTY INSANE PATIENTS IN THE STATE ASYLUM AT UTICA.

BY HENRY D. NOYES, M. D.

By the request of Dr. Gray, I examined with the ophthalmoscope 60 patients taken from the wards of the asylum. Of the nature of their diseases I was quite ignorant, and often did not know whether the persons examined were insane. I had no preconceived notions of what lesions to expect, and simply described in brief notes the appearances which I saw. In most cases the pupils were dilated with atropia, and in almost all cases the examination was made by the upright image. Minute retinal changes can only be seen by this method, and the region of the yellow spot can be well seen only with dilated pupil. I am in the habit of looking with relaxed accommodation, and only require such a corrective glass as the patient's refraction may demand. When any glass is needed, the fact is stated in the notes.

I have endeavored to describe the facts just as they were, and have inserted statements which are not important to the question of diagnosis, viz: the existence of physiological excavation, the accidental pigmentation of the choroidal border of the disc and other points which an ophthalmoscopist would at once know to belong to the variations consistent with health.

In the retina I speak in many cases of the occurrence of minute specks sometimes called pin points—usually found near the yellow spot. They may be in it, directly around it, or between it and the nerve. They are so

fine as only to be seen with the greater magnifying power of the upright image. They are bright in color, whitish or yellowish, but are not the lesions seen in retinitis from Bright's disease, nor in any recognized disease. I have seen the same specks in other eyes, and have not found that they produce any impairment of sight; but I can not assert that they are not precursors of lesions which may injure sight. They certainly appear most often in states of retinal congestion, and they are found in cases of asthenopia. If they are to have any value attached to them, it would be that they indicate hyperæmia. The advancement of the small vessels nearer than normal to the macula, is an undoubted sign of hyperæmia. So, too, striation of the edge of the optic nerve and of the adjacent retina is due to œdema of the tissue. But I do not forget that there is striation which is wholly physiological, even when not amounting to the degree recognized as due to opaque or double outlined nerve fibres (*markhaltige nervfasern.*) In most cases the striation described is of the pathological variety. As to hyperæmia of the nerve, I am quite aware of the great differences which characterize the healthy state of the nerve in different persons, and I am accustomed to look quite as much for change in transparency and texture as for modification in hue. The significance to be given to pulsation of the veins upon the disc is yet a moot question. It has been regarded as a sign of arterial and intra ocular tension. It habitually occurs with quickening of the respiration, and that may have induced it in some of the timid and excitable patients. It has been taken as a sign of cerebral anemia, and made much of in epileptic cases to determine the vascular state of the brain. We are not yet clear on this subject.

The number of cases which are here tabulated are

wholly insufficient for a basis of general deductions. These are but a handful to what must be collected before such generalizations can be made. I have not, however, hesitated to point out facts which appear, on scrutiny of the cases, to be noteworthy. Small though the material is, it may do something to help us understand better a most intricate subject. For an account of similar cases, I would refer to Allbutt's recent work on the ophthalmoscope in brain disease.

GENERAL PARESIS, 11 cases.

In all these cases, with the exception of two, there is hyperæmia and infiltration of the nerve and retina. The striation of the retina, near the nerve, is often extremely pronounced, and may render the edge of the nerve hazy and indistinct. The nerve is often opaque in texture, or may be of a slatey hue. In one instance (5,) the nerve is found pallid, and doubt is expressed whether this may not correctly be called a sign of atrophy. It would not be easy to decide the point without testing the sharpness of sight, which was not done. The hue of the opposite nerve and its ill-defined edge would favor this opinion, because its congestion would be likely to issue in just such pallor as is described in the left eye. Case 11 also presents these tokens, as if it were now in a secondary stage following congestion. The uniformity in the aspect of the fundus oculi was so considerable that I soon learned to suspect from ophthalmoscopic appearances what was the nature of the patient's malady. I am not to be understood as saying, that I could thus diagnosticate general paresis. But the value of this observation will appear when, in inspecting other forms of brain disease, considerable discrepancies are noticed.

1. Man—Admitted August 8, 1871, aged 40. General Paresis, duration one year. (Used atropine to dilate pupil).

Left eye—Small choroidal atrophy, nasal side. Veins rather large. Arteries medium. In region of macula are minute specks, pin points, dusky red. Physiological excavation of disc.

Right eye—Similar. Venous pulsation distinct. Arteries and veins more equal in size. Pin points, specks about the macula. Retina yellowish.

2. Man—Admitted June 29, 1869, aged 35, married, good habits, demented. General Paresis, duration two years. (Used atropine.)

Left eye—Nerve oblong vertically, slightly pale and small, vessels on temporal side few. Veins large and tortuous. Arteries thin. Pulsation distinct. Striation in retina. No physiological excavation. Pin points visible at macula.

Right eye—Nerve more circular. Tissue clear. Veins large. Retina more transparent. Arteries small, some striation above and below. Entire edge of nerve pigmented. Pin points between nerve and macula distinct. Vessels nearly meet at macula.

3. Man—Admitted January 12, 1871, aged 55, married, good habits. General Paresis. Ill health. Duration nine months. (Used atropine.)

Left eye—Nerve transparent, hyperæmic. Vessels tortuous and very numerous. Retina œdematous. Striation decided in upper part of nerve, visible all round it.

Right eye—Same as left, except that there are pin points between disc and macula. Nerve hyperæmic. Striated around edge. Tissue transparent.

4. Man—Admitted April 10, 1871, aged 30, married, smokes. General Paresis. Demented. Duration four weeks. (Used atropine.)

Left eye—Deep hyperæmia of nerve, borders indistinct. Striated. Vessels numerous and tortuous. Veins enlarged and pulsating. Tissue opaque. Slatey hue. Few points. Macula distinct, few vessels approaching it.

Right eye—Nerve extremely hyperæmic. Border of lens hazy. Venous pulsation. Central excavation.

5. Man—Admitted April 6, 1871, aged 48. Demented. General Paresis.

Left eye—Nerve pallid. Vessels small and few. Arteries small. Vessels full. Some striation between nerve and retina. Nothing about macula. Nerve anæmic, or it may be incipient atrophy.

Right eye—Nerve of a more pink hue. Edges ill-defined. Tissue not clear. Veins rather full. Nothing about macula.

6. Man—Admitted November 5, 1868, aged 45, married, good habits. General Paresis. (Used atropine.)

Right eye—Intense hyperæmia of nerve. Physiological excavation. Vessels wriggle out of nerve like worms. Tissue of retina clear. Nothing at macula.

Left eye—Same as right.

7. Man—Admitted April 27, 1871, aged 32 years, single, has used tobacco. Demented. General Paresis. Duration three months. (Used atropine.)

Right eye—Nerve slightly hyperæmic. Edges hazy. Veins full and pulsating. Arteries normal. Slight striation. Tissues not clear. Vessels in retina tortuous. Some specks close to macula.

Left eye—Nerve hyperæmic. Edges not clear. No decided striation. Veins full. Can see macula. One or two specks.

8. Man—Admitted June 7, 1871, aged 38, single, has used tobacco and liquor. General Paresis. Demented. Duration six and a-half months. (Used atropine.)

Right eye—Nerve semi-transparent, hyperæmic. Edges not clear. Slight injection of nerve. Nerve looks foggy without decided opacity.

9. Woman—Admitted March 22, 1870, aged 51, single, good habits. General Paresis. Demented. Duration six months.

Left eye—Capillary hyperæmia. Vessels full. Edges sharp. No œdema of retina. No striation. Can not see macula.

Right eye—Deep capillary hyperæmia. Veins pulsating and full. Substance round retina normal. Edges clean. Can not see macula.

10. Woman—Admitted August 30, 1871, aged 46, married, good habits. General Paresis. Sub-acute mania. (Used atropine.)

Right eye—Pupil very small. Veins indistinct. Capillary hyperæmia. Edge of nerve apparently clear. Veins large.

Left eye—Pupil small. Deep capillary hyperæmia. Vessels tortuous.

11. Man—Admitted July 11, 1871, aged 27, married, good habits. General Paresis. Demented. (Used atropine.)

Right eye—Tissue of nerve somewhat opaque or white. Edges indistinct. Arteries and veins normal. Some specks near macula.

Left eye—Nerve tissue whitish opaque. Floating body in vitreous, attached to end of nerve. Vitreous clear. One or two specks on macula. Edges indistinct.

DEMENTIA, 18 cases.

In 12 the optic nerve and retina exhibited hyperæmia or infiltration. In six they did not. The causes assigned to the mental state in the first cases were, epilepsy 2; intemperance 3; masturbation 3; exces-

sive sexual indulgence 1; phthisis 1; ill-health 1; not given 1.

Duration had been from six months to a year in 3; for one year in 2; for three years in 2; for five years in 2; not stated 3.

Of the six cases not hyperæmic the causes of mental state were, epilepsy 1; hemiplegia 1; intemperance 1; not stated 3.

Duration, one year and less, 3; not stated, 3.

In searching for peculiarities among these cases, it may be stated that while there is nothing like uniformity in the ophthalmoscopic appearances, the preponderance of hyperæmic cases is to be noted. It is further notable that the degree of vascularity is very intense. This affects chiefly the capillary and venous circulation. See cases 12, 14, 15, 17, 18. The torpid condition of the cerebral nerve substance would appear to be reflected in the intra-ocular circulation.

12. Man—Admitted December 21, 1870, aged 50, single, good habits. Dementia. (Used atropine.)

Right eye—Intensely hyperæmic. Veins large and extremely tortuous. Physiological excavation. Swelling on edge of nerve. Striation all round retina. Small veins toward macula numerous and tortuous. Bifurcation deep in nerve. Hypermetropic 1-24. Macula not seen on account of head being tremulous.

Left eye—Extremely hyperæmic. Nerve striated. Veins large, both trunks and small branches numerous and tortous. Hyperæmia of retina around macula. Snakey veins across macula. Veins relaxed and tortuous.

13. Man—Admitted February 3, 1870, aged 33, single. Dementia. Ill-health. 10 months. Choroiditis disseminata. (Used atropine.)

Left eye—Nerve slightly hyperæmic. Vessels numerous. Veins full. Arteries small. Pulsation distinct. Edge and surrounding retina striated. Choroidal epithelium marked. Macula very distinct. Vessels close to it. See foramen centrale: vessels come down on all sides to macula. At periphery vessels distinctly tortuous, but not in all parts.

Right eye—Nerve tissue opaque. Subretinal effusion. Transparent effusion behind retina at bottom of eye seen with –|–7; most anterior part with –|–5. Signs of old choroiditis. Vicinity of nerve edge is ragged on nasal side. White streaks run through choroid.

14. Man—Admitted March 13, 1861, aged 30, single. Dementia. Masturbation. 14 months. (Used an extra quantity of atropine.)

Left eye—Macula not visible. Pin points near it. Vessels traced to centre. Nerve deeply reddened. Central physiological excavation small. Temporal border of nerve contains pigment. Striation adjoining retina. Tissue œdematous. Vessels tortuous, nerve slightly swollen, –|–1·48.

15. Man—Admitted November 17, 1869, aged 23, single, has used tobacco. Dementia. Irregular habits. (Used atropine.)

Right eye—Excessive hyperæmia, and vessels very numerous. Disc and edge strongly striated. Middle portion of retina white. Macula very red (scarlet.) Vessels close to it. Veins large.

Left eye—Central excavation. Striation of disc and substance adjoining retina. Excessive hyperæmia. Venous pulsation. Veins large and opalescent. Macula distinct and red. Retina greyish. Fovea very marked. Close to vessels a few pin points between macula and disc.

16. Man—Admitted April 19, 1871, aged 41, married, has chewed tobacco to excess, intemperate. Dementia. Duration six months. (Used atropine.)

Left eye—Physiological excavation. Vessels numerous. Border of disc distinct. Substance surrounding retina appears as if marked by striæ, or as if broken into radiating dotted lines. Veins and arteries about the same. Macula visible but not well defined, with dots indistinct but numerous. Nerve not specially hyperæmic. Tissue clear.

Right eye—Nerve has central physiological excavation. Not very hyperæmic. Vessels numerous and fairly proportioned. Same dots as in left eye. Specked uniformly. Bifurcation of artery a little covered by connective tissue, suggesting obliteration of central artery. Macula sufficiently marked and surrounding retina finely speckled. Nerve tissue transparent. Edge well defined.

17. Man—Admitted August 27, 1870, aged 50, married, has used tobacco and liquor. Dementia. Ill health from injury. (Used atropine.)

Right eye—Deep hyperæmia of nerve. Edge ill-defined. Retina striated. Arteries small. Veins full. Tissue of nerve clouded. Macula perceptible but not pronounced. No abnormal specks. Can see choroidal epithelium.

Left eye—Nerve oblong vertically. Hyperæmic. Tissue clouded. Arteries small and tortuous. Veins full. Edge of nerve hazy. Retina striated and œdematous. A few glistening points around macula.

18. Man—Admitted December 20, 1869, aged 25, single, good habits. Dementia. Masturbation. Duration 5 years. (Used atropine.)

Right eye—Numerous pin points in macula. Vessels deep in nerve. Hyperæmia of surrounding retina.

Very striated. Moderate temporal excavation. Striation marked above and below and runs along emergent vessels. Pin points between macula and nerve, and beyond. Vessels of moderate size. Macula specially noticeable for striation and pin points. Retina œdematous.

Left eye—Macula distinct. Pin points. Looks granular. Nerve hyperæmic. Opalescent. Striation of border of retina distinct. Veins full. Arteries small. Pulsation evident. No excavation of any consequence. Retina near nerve appears striated. Not much infiltrated.

19. Man—Admitted June 21, 1861, aged 41, single, has used tobacco. Dementia. 5 years. Phthisis.

Left eye—Hypermetropic 1-10. Strabismus in early life. Veins tortuous. Nerve small.

20. Man—Admitted May 6, 1871, aged 22, single. Dementia. Masturbation. (Used atropine.)

Left eye—Nerve pink. Oblong vertically. Central physiological excavation. Edges not clear. Retina not striated. Tissue not clear. Venous pulsation. Nerve tissue clear.

Right eye—Central physiological excavation. Nerve hyperæmic. Distinct reflection from retina. Choroidal pigment deep. Iris brown. Eyes not regarded as abnormal.

21. Man—Admitted February 14, 1870, aged 28, single, has used tobacco, very intemperate. Dementia. 6 months.

Left eye—Nerve hyperæmic. Tissue hazy. Retina striated.

Right eye—Nerve hyperæmic. Faint striation. Marked pulsation. Macula not visible.

22. Man—Admitted July 7, 1870, aged 41, single, has used tobacco and liquor. Epileptic. Duration 3 years. Demented.

Right eye—Faint hyperæmia of nerve. Central physiological excavation. Retina striated. Venous pulsation strongly pronounced. Macula normal. Retina transparent. Striation round nerve.

Left eye—Slight hyperæmia of nerve. Physiological excavation deep. Venous pulsation not strong. Retina faintly striated around disc. One bright pin point on choroid.

23. Man—Admitted March 11, 1865, aged 30, single, good habits. Dementia. Epilepsy. Duration 1 year. (Used atropine.)

Left eye—Nerve hyperæmic. Retina indistinct. Arteries normal. Venous pulsation. Some veins enlarged. Macula studded with spots, which are also scattered over adjoining retina.

Right eye—Physiological excavation. No noticeable dilatation. Retina striated. Border of nerve heavily pigmented. Glistening points on macula but not so many as in left eye.

24. Man—Admitted December 19, 1870, aged 16, single, good habits. Epileptic. Demented.

Left eye—Nerve hyperæmic. Tissue transparent. Veins full and large. Striation above and below; elsewhere normal. Veins full. Arteries fair. Retina normal. Macula not visible.

Right eye—Nerve tissue transparent. Faint redness. Veins full. No pulsation. Arteries normal. Region of macula normal.

25. Man—Admitted April 1, 1862, aged 45, single, good habits. Dementia. Hemiplegia. Duration 8 months. (Used atropine.)

Left eye—Nerve tissue disposed to blue. Moderately transparent. Possibly capillary anæmia. Principal vessels normal. Macula not seen.

Right eye—Atrophy from injury. No specific difficulty.

26. Man—Admitted February 7, 1871, aged 23, single. Intemperance. Dementia. (Used atropine.)

Left eye—Vessels numerous. Retina clear. Macula visible. Congenital striation. Nothing abnormal.

Right eye—Nerve clear. Slight hyperæmia. Vessels numerous. Striation due to opaque nerve fibres. Nothing abnormal.

27. Man—Admitted January 19, 1871, aged 25, single, good health. Dementia. (Used atropine.)

Right eye—Myopic 1-16. Vessels full. Pulsation not excessive. Nerve substance transparent. Edges clear. Vessels of retina tortuous. Macula visible. Normal.

Left eye—Myopic 1-16. Veins full and pulsating. No infiltration. Macula visible. Nothing abnormal.

28. Man—Admitted April 19, 1867, aged 56, married, good habits. Dementia. Duration 7 years. (Used atropine.)

Left eye—Color of nerve nearly normal. Edges a little indistinct. Choroidal specks near nerve.

Right eye—Tissue of nerve nearly normal. Vessels normal. Edges indistinct. Choroidal epithelium thin, showing pigment.

29. Man—Admitted May 12, 1871, aged 34, single, good habits. Dementia. 4 months duration. (Used atropine.)

Right eye—Nerve pinkish. Arteries normal. Veins same. No striation of nerve. Macula distinct. No specks.

Left eye—Nerve pink and transparent. Arteries and veins normal. Lower vessels larger than upper. Can see choroidal pigment about nerve.

MANIA. Acute 15. Sub-acute 5. Chronic 6=26.

The cases of acute and sub-acute mania may be considered together. Among the 20 are found a portion with hyperæmia of the nerve and retina, viz.: 14; and another part in which these tissues are either normal or anæmic, viz.: 6.

Of the hyperæmic, the causes were: meningitis 3, epilepsy 3, masturbation 1, over work 1, intemperance and syphilis 1, typhoid fever 1, phthisis 1, ill health 1, no cause given 3.

The duration of the disease was comparatively brief, viz.: from two weeks to seven months; with one exception, in whom it had lasted seven years and was caused by an injury of the skull, (case 49.)

Of the cases not hyperæmic, the causes were: intemperance 4, masturbation 1, ill health 1. Their duration was in all less than three months; one was only 10 days, (case 31.)

It is true that the larger number of the cases show optic and retinal congestion, but in those which do not, the maniacal symptoms were severe.

We would not assume that the vascularity of the nerve is always an index of the circulation in the hemispheres; but we may suggest that the variety found in the appearance of the optic nerve accords with the view that mania is the result of exhaustion of nerve force, as well as of over excitation.

In the case of only ten days duration, the appearance of the nerve strongly suggests atrophy.

The cases of meningitis all exhibit optic hyperæmia; and the case of old injury (49,) shows marked signs of chronic neuro-retinitis.

30. Man—Admitted February 28, 1871, aged 27. Masturbation. Acute mania. Duration 1 month. (Used atropine.)

Left eye—Nerve pallid. Condition of anæmia, not atrophy. Tissue transparent. Vessels small and few. Arteries diminished and a little thinned. Veins a little larger.

Right eye—Pupil closed by iritis. Patient much excited.

31. Woman—Admitted April 19, 1871, aged 45, married, good habits. Acute mania. Ill health. Duration 10 days.

Right eye—Myopic 1-16. A bluish tint in nerve, suggests atrophy, and vessels tortuous. Retinal tissue normal.

32. Man—Admitted January 20, 1871, aged 35, married, intemperate. Acute mania. Duration 2 months. (Used atropine.)

Right eye—Nerve tissue transparent. Edges clear. Vessels numerous. Nerve tissue normal.

Left eye—Tissue clear, perhaps anæmic. Same as right eye.

33. Man—Admitted May 14, 1871, aged 50, married, smokes and drinks. Acute mania. Duration 2 months. (Used atropine.)

Right eye—Nerve pallid. Oblong vertically. Vessels large and tortuous. Pulsation decided. Nerve substance not infiltrated. Slight striation of choroidal pigment of fundus. Glistening points on macula. Erosion of macula. Difference 1-16 between summit and bottom of nerve.

Left eye—Macula discernible. No lesion. Points in its vicinity. Vessels close to it. Nerve hyperæmic. Vessels tortuous. Venous pulsation. Parallax great. Slight striation. Œdema surrounding vessels. Iris light blue.

34. Man—Admitted July 7, 1871, aged 28, single, has used liquor to excess. Acute mania. Duration 10 weeks. (Used atropine.)

Left eye—Nerve bluish white color. Somewhat striated. Retina not infiltrated. Vessels normal size. Venous pulsation. Macula distinct. No specks.

Right eye—Nerve nearly of normal hue. Fine striations. Vessels normal. Tissue of retina normal.

35. Man—Admitted November 15, 1869, aged 38, married, has used tobacco to excess, intemperate and has syphilis. Sub-acute mania. Duration 4 weeks. (Used atropine.)

Left eye—Slight hyperæmia. Tissue almost clear. Retina round nerve granulated, not striated. Veins rather large. Vessels on temporal side small and few in number. Retina extremely speckled around the vicinity of the nerve as well as macula. Macula not well defined. Central portion of fundus equal to six diameters of optic disc across, sprinkled with faint yellow spots, a few lustrous, most of them dim.

Right eye—Nerve a little pallid. Small vessels few. Veins and arteries natural, but perhaps diminished. Retina hazy. Intensely speckled over large region like an eruption of lichen.

36. Man—Admitted February 12, 1870, aged 47, married, has used tobacco. Ill health. Acute mania. Duration 2 weeks. (Used atropine.)

Left eye—Nerve pinkish, slightly hazy. Veins large as usual. Retinal tissue normal.

Right eye—Nerve tissue pinkish, not clear, faintly striated. Adjacent retina speckled, as if from absorbed exudation. Vessels not extra full. Macula visible. A few pin points near retina.

37. Man—Admitted July 21, 1871, aged 25, single, intemperate. Acute mania. Meningitis. Duration 4 weeks.

Right eye—Great tortuous vessel on retina, may be congenital. Nerve moderately pink. Edges clear. Physiological excavation.

Left eye—Nerve tissue transparent. Vessels fair size. Slightly tortuous on retina. Macula distinct. Retinal tissue slightly dotted. Probably healthy. Appearances not decisive.

38. Man—Admitted June 13, 1868, aged 31. Sub-acute mania. Overwork. 6 months.

Right and left eye—Same. Nerve hyperæmic. Physiological excavation. Veins large. Vitreous hazy. Myopic 1-8. Eye restless. Macula not seen. Patient much excited.

39. Man—Admitted February 21, 1870, aged 22, single. Sub-acute mania. Irregular habits. Masturbation. 4 months.

Right eye—No physiological excavation. Marked hyperæmia of disc. Striation of entire edge. Veins full—pulsating. Opalescence over veins and arteries as if due to connective tissue in retina. Hyperæmia distinct. Inverted image.

Left eye—Similar.

40. Man—Admitted April 22, 1871, aged 52, married, smokes. Acute mania. (Used atropine.)

Left eye—Great number of vessels. Tissues hyperæmic and not clear. Edge pigmented. Macula normal. No excavation.

Right eye—Old iritis.

41. Man—Admitted January 7, 1869, aged 35, married, good habits. Dementia. Sub-acute mania when admitted. Aphasia complete.

Right eye—Nerve hyperæmic. Infiltration of its border distinct. Veins largely dilated. Arteries small. No pulsation. Patient uneasy.

42. Man—Admitted May 16, 1870, aged 41, single, good habits. Acute paroxysmal mania. Duration 3 weeks. (Used atropine.)

Right eye—Vessels large. Deep capillary hyperæmia. Edges clear. Physiological excavation. No changes in retina. Myopic 1-16.

Left eye—Myopic 1-8. Vessels upon nerve quite large. Man restless. Large frame and head.

43. Woman—Admitted February 2, 1871, single, good habits. Acute mania following typhoid fever. 5 months.

Right eye—Central physiological excavation. Nerve tissue decidedly pink. Not perfectly clear. Vitreous hazy. Retina striated above and below. Macula visible. Iris dark. The haziness of retina may be congenital.

Left eye—Central physiological excavation. Great parallax. Nerve hyperæmic. Vessels full. Macula visible. No specks.

44. Man—Admitted October 5, 1870, aged 27, single, good habits. Acute mania. Phthisis. 2 months duration. (Used atropine.)

Right eye—Nerve moderately hyperæmic. Veins large: very opalescent: pulsating. Nerve tissue not transparent: edges somewhat clear. Small vessels near macula tortuous and run to centre. Specks on macula.

Left eye—Macula distinct. Small vessels tortuous approaching macula. Nerve tissue transparent. Central and temporal excavation. Edges clear and faintly striated. Veins large and pulsating. Retina near nerve looks infiltrated. Vessels wriggle on retina.

45. Man—Admitted August 9, 1870, aged 17, single, good habits. Acute mania. Meningitis. Duration 2 weeks. (Used atropine.)

Right eye—Nerve hyperæmic. Tissue striated. Vessels numerous. Veins large. Striation of all adjoining retina decided. Venous pulsation emphatic. Choroidal spots. Macula very distinct. Surrounding

macula are grayish spots. Some pin points between macula and disc. Beyond macula faint choroidal thinning.

Left eye—Striation of nerve and adjoining retina. Veins opalescent; pulsate, are not enlarged. Arteries fair. Macula distinct. Surface of retina gray. Vessels run close to macula. No pin points.

46. Man—Admitted September 27, 1870, aged 52, married, has used liquor and tobacco. Acute mania. Epilepsy. 7 months. (Used atropine.)

Right eye—Nerve cloudy, hyperæmic; edges heavy. Vessels full. Macula not visible.

Left eye—Pupil closed by iritis.

47. Man—Admitted October 18, 1871, aged 33, married, good habits. Sub-acute mania. Meningitis. Duration 7 months. (Used atropine.)

Right eye—Nerve moderately hyperæmic. Veins large. Arteries normal. Physiological excavation. Striation of edge of nerve and all adjacent retina. Veins opalescent and pulsating. Macula distinct. Choroidal atrophy as well as retinal specks.

Left eye—Nerve hyperæmic. Tissue not clear; hazy; some swelling. Veins pinched at egress, dilated outward. Arteries small. Striation decided, reddened and slight œdema. Beyond nerve, arteries are slightly tortuous. Macula not clear. Specks near, and vessels run close to it.

48. Man—Admitted May 3, 1870, aged 22, single, good habits. Acute maniacal attacks. Epilepsy. 2 weeks.

Left eye—(Used atropine.) Slight hyperæmia of nerve. Slight physiological excavation. Veins somewhat dilated and pulsating. Striation of adjacent retina. Some specks at macula.

Right eye—(No atropine.) Hyperæmia of nerve. Edge of nerve distinct. A little striated. Arteries and veins tortuous and pulsating. Macula not seen. Small pupil.

49. Man—Admitted January 19, 1870, aged 42, married, used tobacco. Epilepsy. Injury to skull. Duration 7 years. Attacks of mania with epileptic seizures. (Used atropine.)

Left eye—Hyperæmia of nerve. Deep temporal physiological excavation. Venous trunks large; not tortuous. A white patch on nasal side of nerve. Nerve partially concealed by vessels. Glistening cobweb look. Small vessels on temporal side are tortuous. Faint striation of surrounding retina. Macula not seen. Vessels run toward it.

Right eye—Nerve hyperæmic. Temporal excavation. Veins numerous. Tissue not clear. Border indistinct. Retina hazy. Choroidal epithelium slightly granular. Veins covered with faint opalescence.

CHRONIC MANIA, 6 cases.

Of these 3 show signs of inflammatory action or hyperæmia in the optic and retina, and 3 show no lesions.

50. Man—Admitted February 20, 1871, aged 49, married, good habits. Chronic mania. Duration 5 years. (Used atropine.)

Right eye—Neuro-choroido-retinitis. Nerve infiltrated, hazy. Patches of connective tissue in choroidal pigment. Vessels numerous and tortuous. Transparent subretinal effusion.

Left eye—Nerve tissue not perfectly transparent. Slightly pink. Slight exudation on retina at upper edge of nerve. Vessels rather full. Nothing at macula.

51. Man—Admitted July 27, 1870, aged 57, single, smokes and drinks. Chronic mania. Duration 2 years. Intemperance and vice.

Right eye—Myopic 1-16. External physiological excavation. Slight choroidal crescent temporal side. Tissue of nerve mottled. Lamina cribosa distinct. Veins and arteries pinched. Hyperæmia of nerve substance. No pulsation.

Left eye—Physiological excavation very deep. Myopic 1-48. Hyperæmia of disc. No pulsation visible. Veins and arteries normal. Retina normal.

52. Man—Admitted October 13, 1847, aged (at present) 64, single, good habits. Chronic mania. Duration (before admission) 3 years. (Used atropine.)

Right eye—Myopic 1-16. Vessels numerous not enlarged. Venous pulsation. Nerve hyperæmic. Central physiological excavation. Tissue not clear. Edge of nerve ill-defined. At macula decided erosion spots. No striation of retina about nerve.

Left eye—Nerve slightly hyperæmic. Vessels reduced in size. Tissue not clear. No pulsation. No striæ. Myopic 1-48. Region of macula as if exudation and absorption had taken place.

53. Man—Admitted July 3, 1871, aged 27, single. Masturbation. Chronic mania. (Used atropine.)

Left eye—Nothing abnormal. Iris dark. Macula distinct. Congenital opaque nerve fibres on retina. Nerve tissue transparent pink. Central physiological excavation. Nothing abnormal.

54. Man—Admitted February 20, 1871, aged 45, single, has used tobacco. Chronic mania.

Right eye—Nerve tissue not clear. Macula visible. Retinal tissue clear. No specks.

Left eye—No deviation from normal. Nerve transparent.

55. Man—Admitted October 14, 1870, aged 43, married, good habits. Chronic mania. (Used atropine.)

Left eye—Nerve nearly normal tint. Vessels rather small. Striation round nerve. Pigment on choroidal edge. Retina slightly granular. Unable to find macula. Veins pointed at nerve.

Right eye—Nerve pink. Arteries small. Veins not enlarged. Edge of nerve rather hazy. Retina not striated. Nothing noticeable about macula.

MELANCHOLIA, 5 cases.

In only one case could any evidence of abnormal condition be detected within the eye.

In the remaining 4 the ocular tissues were healthy.

56. Man—Admitted December 21, 1870, aged 39, married, good habits. Melancholia. Overwork and heat. Duration 5 months.

Left eye—(Used atropine.) Nerve moderately hyperæmic. Central and temporal excavation. Striation on border of and surrounding retina. Veins moderately large and surrounded by opalescence. Arteries of fair size. Connective tissue around them abundant. Most abundant below. Striation distinct. Arterial sheath of connective tissue. Macula red and distinct. Retina hazy. Veins near macula. One large pin point above horizontal meridian. None near macula. Opaque nerve fibres above and below.

Right eye—(No atropine.) Not looked at.

57. Man—Admitted June 20, 1871, aged 25, single, good habits. Imbecile.

Left eye—Nerve transparent and pinkish. Vessels numerous. Some striation in retina. Tissue transparent and normal.

58. Man—Admitted December, 14, 1861, now aged 39, has smoked. Melancholia. Masturbation. Duration 6 weeks.

Left eye—Hypermetropic 1-12. Nerve normal hue. Edges distinct. Arteries and veins normal.

59. Man—Admitted March 25, 1871, aged 43, married, has used tobacco. Melancholia. Duration 2 years.

Right eye—Nerve normal color and texture. Vessels small. No distinct striation of edges. Some specks about macula.

60. Man—Admitted February 3, 1871, aged 50, married, good habits. Melancholia.

Right eye—Central excavation. Nerve tissue healthy. Faintly anæmic. Veins normal. Arteries small. Tissue of retina transparent. Macula not visible on account of having no atropine. Myopic 1-16. Nerve pinkish. Central excavation. Arteries small. Veins usual size. No striation. Edges well defined. Can not see macula.

The number of cases above described are too few to justify dogmatic generalizations. But one can not help being struck with the dissimilarity of the appearances in cases classified as belonging to the same category. The putting of a certain number of patients together, under one head, whose violent mental manifestations deserve the name of mania, is a convenience in certain respects; but no one pretends that this is a classification based on pathological distinctions. The actual state of the brain in these cases is widely unlike in different individuals. Hence there is no wonder at discrepancies in ophthalmoscopic appearances. In classifying insanity, mental manifestations have been made the basis of distinction, because indeed we have been unable to determine the physical state of the brain, which was the real disease. The ophthalmoscope may help us during life to arrive at some knowledge on this vital subject. But the necessary limitations of its power of penetration must be borne in mind. First, that it

shows only one of the prolongations of the brain, which may not be involved in the brain lesion. Secondly, the magnifying power yet obtainable is too small to show the intimate texture of the optic nerve and retina. As in the brain, it is impossible often to see the true lesions without the higher power of the microscope; so for the optic nerve, we need much greater power than we yet have in the ophthalmoscope. But, despite these restraints upon its capability, it shows us often important facts. For example, atrophy of the optic nerve not infrequently precedes disorders of the brain and spinal cord; and sclerosis may be the pathological change at the foundation of all the lesions. Again, retinal hemorrhage may be the precursor of cerebral hemorrhage.

It is also true that serious lesion may exist in the optic nerve and retina without any damage to sight. In the case of the insane, it is important to question them closely as regards the degree of sight, and make them fulfill the proper test by test letters, such as those of Snellen. If practicable, the field of vision should be determined so as to discover defects in the peripheral part of the retina. Certainly the inspection of the optic nerve by the ophthalmoscope should never be neglected.

It is hoped that opportunity may be afforded for continuing the above investigations, and many more cases be added to to the above list.

New York, December 15, 1871.

BIBLIOGRAPHICAL.

REVIEW OF ASYLUM REPORTS FOR 1871.

1. New Hampshire. *Thirtieth Annual Report of the New Hampshire Asylum for the Insane:* 1871. Dr. J. P. Bancroft.

There were at date of last report 253 patients in the asylum. Admitted since, 135. Total, 388. Discharged recovered, 65. Improved, 37. Unimproved, 29. Died, 32. Total, 156. Remaining under treatment, 225.

A larger number of deaths than usual is reported, though the institution has not suffered from any epidemic disease. This increase is explained "by the grave character of the diseases of the great nervous centres, with which an unusually large number were admitted." "By reference to the tabular statements, it will be seen that the recoveries have been nearly forty-nine per cent. on the whole number of admissions, embracing every form of chronic cerebral disease enumerated before, which class constituted forty-five per cent. of the whole number of admissions. The ratio of recoveries to the whole number of cases of recent disease of not over six months duration is a fraction over eighty-nine to the hundred."

It is upon such facts as this, that the strongest arguments are based for the erection of hospitals for the cure of insanity, and for the early treatment of the disease. Dr. Bancroft, after a full and careful use of chloral, commends it as a useful remedy and one to be relied upon as a hypnotic. His experience confirms in the main, the conclusions arrived at from its use in the asylum at Utica, and published in the number of this Journal for July, 1871.

The improvements in the ventilation of the asylum which were in progress at the date of the last report have been completed and found highly satisfactory.

They are thus described: "Foul air flues about one foot square were constructed in every bedroom and dining-room in these six halls, making ninety-four in all, terminating in the attic. In the Chandler wing there was also built a ventilating chimney thirty inches square, with a small coil of steam pipe near the base to produce a current, and into the base of this are introduced downward flues from all the water-closets and dormitories of this wing." Repairs have been made in relaying floors, repainting woodwork, and plumbing, so that all parts of the building are in good order.

2. New York. *Fourteenth Annual Report of the Kings County Lunatic Asylum:* 1871. Dr. E. R. Chapin.

There were at date of last report 602 patients in the asylum. Admitted since, 355. Total, 957. Discharged recovered, 103. Improved, 85. Unimproved, 52. Died, 75. Total, 315. Remaining under treatment, 642.

In addition to the usual statistical matter Dr. Chapin presents some judicious remarks upon the injury done to patients by their too early removal during convalescence, and by the ill-timed visits of friends.

These remarks are in full accord with the experience of all who have charge of the insane in asylums. We quote at some length:

> In the anxiety of friends to gratify every wish of their insane relatives—consistent with their own ideas of safety and propriety—they are too prone to yield to their importunities to remove them from the asylum as soon as, and sometimes even before, convalescence is fairly established. In vain they are told that such a step is extremely hazardous, and that their unfortunate relatives are almost sure to be returned in a condition as bad, if not worse, than when they were first brought to the institution, and that their

chance for restoration would then be greatly lessened. To as little purpose are instances cited in which such experiments have been attended, with only rare exceptions, with other than unfavorable results. Their tender sympathies blind them to everything but the favorable exceptions, and without this support even, they too easily persuade themselves that, in the instance of their suffering friends, fortune will be equally favorable. Surely, they say, no harm can come to the afflicted one if kept strictly within the perhaps limited precints of their immediate family circle, and they are very slow to be convinced that it is precisely here that the insane are most liable to a rekindling of their disorder. Accustomed, if parents, to rule their families, and perhaps with some austerity, or, if a son or a daughter, to a kind of deference, or an independence of action and movement that can not in safety or in the interest of all concerned be now conceded to them, they become at once irritated and annoyed beyond endurance. Unable to comprehend, owing to their disordered mental condition, why they should be kept under such constant surveillance, in turn perhaps by every member of their household, they become further exasperated from this circumstance, and finally as insane as ever. Were it practicable to have them boarded and properly cared for away from their homes, and by persons not previously known to them, there would be less hazard in removing them from the asylum. Under the regular routine of asylum life, the extravagant conduct manifested by the insane while among their friends, ordinarily soon subsides, or becomes greatly modified, and the friends are surprised at the sudden change. Actually, however, they may be mentally no better, though, owing to their surroundings, under better self-control; returned to their homes, they soon lose this power, and, as has been said, speedily become as excited and boisterous as before.

Next to the mischief occasioned by the too early removal, comes that of too frequent visits to the insane by their friends or acquaintances. Owing to its location and ease of access, there are few institutions in this country in which there is so much probable harm done from this cause. And this improper visiting can not be further restrained to a much greater extent than it now is. Could friends be controlled less by sympathy, or the emotional, and, in fact, better part of our nature, and more by their intellectual or reasoning powers, they would yield more willingly in this respect to the counsel of those experienced in the treatment of mental disorders. But feeling is not logical. They find themselves under

the same roof, and perhaps within the sound of the voice of their suffering kindred, and it seems inhuman that they should be turned away without being allowed to see them. They wish to try for once the effect of their presence, which they feel sure can be but soothing—can at least do no harm, if it do no good. Some have come a long way, others have lost a day's labor, or are so employed that they may not for a long time be granted another day's leave, and urge these as reasons why they should be indulged; forgetting, or, some of them, seemingly not being able to comprehend, that their own inconvenience, or ungratified personal feelings and wishes, however worthy, should weigh as nothing in the balance of a possible detriment liable to be incurred by the desired interview. Insanity under these circumstances illustrates the exceptional instance where one may be "blessed with few friends." But the friends must first or last be pacified, each individually by himself or herself, and experience teaches us the earlier it is done the better. And, by the way, it would seem really ludicrous, were it not so serious, the patience and labor, to say nothing of the cutting observations to be quietly borne in this attempt; costing actually, in some instances, more trouble than is incurred in the endeavor to cure the invalid.

3. PENNSYLVANIA. *Annual Report of the State Lunatic Hospital of Pennsylvania:* 1871. Dr. JOHN CURWEN.

There were at date of last report 434 patients in the hospital. Admitted since, 206. Total, 640. Discharged recovered, 37. Improved, 37. Unimproved, 85. Died, 31. Total, 190. Remaining under treatment, 450.

Dr. Curwen speaks hopefully of the advance in the moral, hygienic and therapeutic treatment of insanity in the past twenty years: of the experience gained by those having the care of institutions for the insane and of the diffusion of more accurate knowledge of the subject among the masses. He also places himself on record as a staunch advocate of a general hospital system in the State, where all classes can be treated, while suffering under this disease.

Another great and pressing need is the provision at the earliest period for all who may become insane, and require prompt treatment in the earliest stages of the disorder that they may be promptly restored. If there be in Pennsylvania nearly four thousand insane, and hospital provision for half that number, it will need no profound mathematical knowledge to demonstrate that, with all the hospitals in the State now crowded, a large number of of those becoming insane can not obtain that treatment which they should have to effect their restoration, and they must inevitably continue insane during the remainder of their days, and be a heavy burden on their families or the community. Justice and true economy require that when any member of the community becomes incapable, by reason of disease, of taking care of himself, and his friends can not give him that care he really demands, that the State should make such provision that he may be restored at the earliest period, and become a support and not a burden. This can only be properly secured by the establishment of as many hospitals as are really required to meet the exigencies of the people; and these should be provided at the earliest possible period, that those who are now insane and unprovided for may receive care, and those who may become insane may be prevented from becoming chronic and dependent. This provision should be made for all classes alike in the same and not in separate buildings, that thus proper economy may be exercised and useless expenditures of two classes of building be avoided.

4. MARYLAND. *Twenty-Eighth Annual Report of the Mount Hope Institution and Retreat:* 1871. Dr. WILLIAM H. STOKES.

During the year ending January 1, 1871, the number of patients under treatment was 471. Of this number 310 were insane; 161 were received in the inebriate department. There were admitted, during the year, 120 cases of insanity and 156 of inebriety. There were discharged, 272; 116 from the insane asylum and 156 from the department for inebriates. Of the insane discharged, there were recovered, 62. Improved, 18. Unimproved, 12. Died, 24. Remaining under treatment, 194.

In this report the doctor enumerates the advantages to the patient to be derived from a residence in a well

appointed institution for the insane. Although these are great, and sufficient to convince most minds that the insane can be better cared for in an asylum than in a private family, yet haste and precipitancy, in a matter of so much importance, are to be avoided.

The removal of a person to an asylum should never be undertaken unadvisedly and without mature deliberation. The isolation and separation of any one from those with whom he has been accustomed to live, and from his family and friends, and restrained from his accustomed habits and business, is a question of the first and gravest importance. Certainly, no one has a right to assume the responsibility of placing any person in a hospital without sufficient reason for believing that, under the circumstances, it will better promote his welfare than any other. Such a measure should not be adopted hastily. The family and friends should have the clear and well-grounded conviction of its necessity. There should be no room for uncertainty as to the propriety of the step. There should remain no chance for painful doubts as to whether something else ought not to have been tried before resorting to a deprivation of the patient's personal liberty, and separating him from home and friends. If their minds are not absolutely convinced of its necessity—if they are not clearly satisfied that the patient's best chance of recovery will be found in an institution expressly devoted to, and appropriately arranged for the treatment of this class of diseases—let them avail themselves of the best medical advice they can, and be governed by it. Nothing is so detrimental to the welfare and interest of a patient as for the friends to regret having taken this step, and to seek to retrace it by withdrawing him prematurely from the treatment instituted for his relief. Nothing is so calculated to mar his prospects of recovery, and to inflict irreparable mischief upon him than irresolution and fickleness of purpose on an occasion like this. They may rest assured that no other expedient, however well devised, will prove a safe substitute for regular, systematic and persevering medical and moral treatment in a well-conducted asylum. All mere experiments in such cases are injurious, and ought to be condemned.

The visits of friends, especially in the acute stage of the disease, are deprecated, and well-founded objections forcibly and plainly stated.

5. VIRGINIA. *Report of the Central Lunatic Asylum for Colored Insane, Virginia:* 1870–71. Dr. D. B. CONRAD.

This asylum was established in 1865 by the Freedman's Bureau, as a hospital for indigent freedmen, and so used during the existence of the Bureau. On the 17th of December, 1869, it was organized as an asylum exclusively for the colored insane. There were at this time 70 inmates. Admitted, to November 1, 1870, 110. Total, 180. Remaining in the asylum, November 1, 1870, 147 patients. Admitted since, 63. Discharged during the year, 17. On probation, 25. Eloped, 1. Died, 18. Remaining under treatment, November 1, 1871, 175.

The statistics are, from the circumstances of the case, necessarily very imperfect. In the first report, the doctor says many of the patients were found at large and committed to the asylum, without any history of the person or the disease, who were too ignorant or too insane themselves to supply the deficiency. Dr. Conrad seems fully to appreciate the importance of securing and placing in available form all the statistics relating to insanity among the colored population of Virginia, and in his annual report, for 1871, has presented these statistics tabulated in accordance with the plan recommended by the Association of Superintendents of American Institutions for the Insane.

The tables are thirty-four in number, and are made as complete as the information at hand would permit.

The doctor says: "By verified inquiry, I believe the statement to be correct, that Virginia is the first State to establish an asylum exclusively for *colored insane.*" Dr. Francis T. Stribling, of Staunton, Va., was the first to recommend the establishment of such an institution in 1845. A separate asylum for the colored insane was established some years ago in connection with the Ten-

nessee State Asylum, while under the management of Dr. W. P. Jones.

We are glad that the old State of Virginia, which had the honor of having established one of the first insane asylums in the land for the white population, has also been among the first to recognize the claims of its colored citizens.

6. Missouri. *Annual Report of the St. Louis County Insane Asylum:* 1871. Dr. Chas. W. Stevens.

There were at the date of the last report 216 patients in the asylum. Admitted since, 120. Total, 336. Discharged recovered, 31. Improved, 12. Unimproved, 22. Died, 18. Total, 83. Remaining under treatment, 253.

The institution has suffered much from the want of water. The rains of last winter filled the pond, where water was obtained, for the first time in eighteen months. During the summer months, for several weeks, water was obtained from a source a mile distant, and for two weeks, in the coldest part of the winter, ice was melted to furnish water for the boilers. Gasoline is on trial as a means for lighting the building, and has thus far given good satisfaction. Dr. Buttolph, of Trenton, N. J., has used it with success for several years. In places where gas can not be obtained from some established company, the use of this material would seem to be more economical than the erection of buildings for the manufacture of gas.

Dr. Stevens treats briefly of the treatment of insanity and bears testimony to the value of medication, and especially to the use of chloral as a sedative. He also urges the extension of the building in accordance with the original plan, as rendered necessary by the demands upon the institution.

7. North Carolina. *Report of the Insane Asylum of North Carolina for* 1871. Dr. Eugene Grissom.

There were at date of last report 232 patients in the asylum. Admitted since, 44. Total, 276. Discharged recovered, 9. Improved, 5. Unimproved, 9. Died, 8. Total, 31. Remaining under treatment, November 1, 1871, 245.

Of the patients under treatment 90 per cent. are chronic cases. "The utmost capacity of this institution has been reached, or, more truly speaking, stretched to a point incompatible with the highest measure of success." "During the year, of the numerous applications for admission on file, amounting to over 300, we have been able to make room for only 27 males and 17 females." Upon the subject of increased accommodation, the doctor speaks most feelingly. He portrays the consequences to the individual in passing into a condition of hopeless chronic insanity, from neglect of treatment in the early stages of the disease, and to the State in having to care for its citizens during a long life of continued helplessness and expense, for need of present and timely aid. The appeal to the State is a strong one, and we hope may not be disregarded. Some repairs and improvements have been made. A new apparatus for making gas has been introduced; the heating apparatus has been renewed through a portion of the building, increased facilities for ventilation provided, and other improvements proposed, for which the State is called upon to make provision.

8. Tennessee. *Eighth Biennial Report of the Tennessee Hospital for the Insane:* 1871. Dr. John H. Callender.

There were remaining in the hospital at date of last report, October 1, 1869, 294 patients. Admitted since, to October 1, 1871, 239. Total, 533. Discharged re-

covered, 98. Improved, 19. Unimproved, 4. Not insane, 2. Died, 58. Total, 181. Remaing under treatment, 352.

This is the first report made by Dr. Callender. He takes a firm position upon the question of the proper care of the insane. The State of Tennessee has reached the condition when the question of further provision must be met and answered. We transcribe from his report:

At the organization of this institution—now nearly twenty years since—it was wisely made a cardinal feature of the law of admission of patients, that recent cases of insanity should have preference over those of long standing. In admission, so far as practicable, without excluding subjects who were, on clear proof, dangerous and disadvantageous to the community in being at large, this regulation has been observed from the first. In the course of time, however, quite a number who were the subjects of recent and acute insanity when admitted, have survived, and still remain subjects of chronic incurable insanity. Year by year, though there be frequent discharges under opportune circumstances, of patients of this class, who become entirely harmless and amenable to the control of their friends at home, the number increases. A patient of this class requires as much room, and as much provision of every kind for proper maintenance, care and treatment, as an acute case of insanity. In time, such cases would appropriate the entire Hospital.

Now, for reasons not necessary to discuss in such a report at length, but which, after thorough investigation of the subject, the united voice of the managers of hospitals for the insane, reaffirmed in the past few months, declares to be a fact, it is not wise, nor humane in the interests of these unfortunates, to separate the acute from the chronic incurable insane, and place them in separate institutions. The most obvious of these reasons is, that institutions for the feeble and chronic insane only, supported at the public expense, would degenerate into alms-houses, the control and support of which would soon come to be let by contract to the lowest bidder, with the inevitable result of meagre food, insufficient clothing, improper attention, or worse, downright cruelty, and the noble name of charity in this behalf, would be desecrated.

But, the State of Tennessee having but limited accommodation for all of its insane of both classes—acute and chronic—it is clearly necessary for the due treatment, both for curative results and custodial care, of the most urgent and necessitous of both classes, that the harmless chronic insane should not be sent simply because they are a trouble to their friends, and that the harmless chronic subjects already here, should be returned to their friends, in all cases in which the domestic circumstances will justify. The law of admission as originally set forth in the Code, perhaps needs no amendment in this respect, but the purely eleemosynary character given to the hospital by the act of February 19, 1870, has had the effect to largely increase the number of applications of this sort, and to obstruct the due proper efforts of the management to discharge to their friends, those of this class who should be returned. This is a feature which is respectfully recommended to you for consultation with the General Assembly.

We fully concur with the doctor, that insane asylums are not adapted to the care of inebriates, "that the retention of such patients, with a view of reforming their inebriety, is harmful to the proper inmates of a hospital for the insane, and destructive of the peculiar discipline and organization which must be maintained in the wards of such establishments." We would quote further from the report did our space allow, especially upon the subject of treatment of patients.

9. Washington, D. C. *Report of the Government Hospital for the Insane, Washington, D. C.:* 1871. Dr. C. H. Nichols.

There were in the hospital, at date of last report, 454 patients. Admitted since, 194. Total, 648. Discharged recovered, 63. Improved, 24. Unimproved, 9. Died, 44. Total, 140. Remaining under treatment, 508.

An extension of the hospital accommodations for 129 quiet patients has just been completed at a cost per patient of $461.10. This reflects credit upon the general

management, and furnishes a strong argument for the enlargement of existing institutions to accommodate the chronic insane in curative establishments, in all cases where they have not reached the limit of extension found beneficial and economic by long experience.

Dr. Nichols has also expressed his views in this report in regard to the disadvantages of receiving inebriates into institutions for the insane. He says:

> The insane and inebriates disdain each other's company. Each feels degraded by association with the other. However obvious it may be to others that the thinnest partition separates the inebriate from downright insanity, he rarely exhibits any sympathy for the insane, but, on the contrary, he is prone to play upon their delusions and mental weaknesses, and to harrass them in every way. Skilled in deception by long practice, and devoted to self-indulgence, the inebriate, in spite of the interposition of authority and the vigilance of attendants, almost always drives the lunatic to the wall, and secures all the little prizes of their associated life. It will be rightly inferred that we regard the care of inebriates in this hospital as a perversion of the express objects of its establishment and maintenance, and in a subsequent part of this report we shall show that the existing hospital edifices are inadequate to accommodate the insane now under care, much more to accommodate the prospective increase in number. It should not be inferred, however, that either as a board or as individuals we are indifferent to the very urgent need there is of a provision for the restraint and reformation of the inebriates of this District, and we suggest to the benevolent gentlemen who have recently conferred with us upon the subject, as to the readiest, least expensive, and altogether most feasible way in which the inebriates of the District can receive the benefits of restraint and treatment, that Congress be asked to pass an act authorizing the sending of them to one or more of the existing public institutions for that class of persons, the selection of the institutions in which they may be placed to be made by the Secretary of the Interior, and to make a small appropriation for the maintenance of those who are unable to defray their own expenses.

This experience will, we think, accord with that of all superintendents of insane hospitals.

10. Ohio. *Twelfth Annual Report of the Longview Asylum:* 1871. Dr. J. T. Webb.

There were in the Asylum, at date of last report, 544 patients. Admitted since, 263. Total, 807. Discharged recovered, 119. Improved, 32. Unimproved, 15. Eloped, 5. Died, 61. Total, 232. Remaining under treatment, 575.

There are now 220 patients more than the capacity of the building can accommodate. About 100 of these belong to the Central District and will be removed upon the completion of the institution now being erected in place of the one destroyed by fire some two years ago. This will leave a surplus of about 125 patients, to accommodate which the building of an extension to the present institution is demanded. Many cases which might be cared for in other public institutions, or even in private families, swell the number of patients and overcrowd the wards of the asylum.

Dr. Webb, the present superintendent, entered upon his duties in June last, as successor to Dr. McReynolds, who was in charge for some five months of the year. He has already gained the hearty support of the managers, who commend his "judicious management" of the affairs of the asylum. The views presented in the report, and changes already effected, show that the doctor has a proper appreciation of the responsibilities of his position and of the demands of the unfortunates under his care.

11. New York. *Annual Report of the New York City Lunatic Asylum:* 1871. Dr. R. L. Parsons.

During the year 1870, 780 patients were admitted. 453 have been discharged. 132 have died. Of those discharged, 212 had recovered; 129 had improved; 112 were unimproved.

Dr. Parsons, in this report, treats at some length of the "improper cases" that are admitted to the institutions for the insane, and urges the importance of greater care on the part of physicians who sign certificates of insanity. The statistics of the past 24 years have been consolidated, and present, in a condensed form, much valuable information.

12. Massachusetts. *Thirty-Ninth Annual Report of the State Lunatic Hospital at Worcester:* 1871. Dr. Merrick Bemis.

There were in the hospital at date of last report 408 patients. Admitted since, 470. Total, 879. Discharged recovered, 209. Improved, 177. Unimproved, 8. Died, 63. Total, 457. Remaining under treatment, 421.

13. *Sixteenth Annual Report of the State Lunatic Hospital at Northampton:* 1871. Dr. Pliny Earle.

There were at date of last report 405 patients in the hospital. Admitted since, 211. Total, 616. Discharged recovered, 43. Improved, 64. Unimproved, 61. Died, 28. Total, 196. Remaining under treatment, 420.

14. *Report of the Board of Public Charities of the State of Illinois:* 1870.

We have classed together the three reports above named, in which are discussed at length, the various methods for the care of the insane. Dr. Bemis and the Illinois Board of State Charities are each strong advocates of the cottage plan, with the hospital proper attached; and at Worcester this plan has already been placed in operation. We quoted at length from Dr. Bemis' report, giving a detail statement of the plan, in the Journal for January, 1871. From the report of the Illinois Board, we quote the resolution of the conference:

"*Resolved*, That in the judgment of this conference, so far as is practicable, a combination in insane asylums, of the cottage system with that at present in vogue is desirable." Dr. Earle after an extensive examination of both American and foreign institutions: having visited in his tours abroad 83 asylums, including those erected upon all the different plans which have found advocates in any country, speaks thus of the recently built district asylums of Scotland:

> In another direction, however, Scotland furnishes an example which is worthy, in my opinion, of all regard and of faithful following. This is found in her county or district asylums of most recent construction. I am free to acknowledge that I have never seen any other institution for the dependent insane which, upon the whole, coincide with my views of what such an institution should be, more nearly than the district asylum for the counties of Kinross and Fife, at Springfield, in Fifeshire. In June last it had about 250 patients, and it can not accommodate more than 280. The building is substantial, plainly but neatly finished, with but little expense for mere ornament, either externally or internally, unpretentious yet sufficiently agreeable to the eye. The appearances of personal restraint were few, and the evidences of industry among the patients many. To such institutions, I have the best of reasons to believe, the commissioners in lunacy for Scotland extend their cordial approbation.
>
> Whatever other results may follow the discussion of the different methods of treating the insane in Massachusetts, nothing, in my view, is clearer than that it will be found that not only will the necessity for all her existing hospitals remain, but, unfortunately, that the time is not far distant when more will be required. It appears to me that in no other way can that future provision be supplied so favorably, both to the interests of the tax-payers and the welfare of the insane, as by county or district hospitals, corresponding in size and character with the above mentioned asylum for Fife and Kinross.

These are constructed upon the ordinary hospital plan now in use in this country. As our views have heretofore been expressed in this JOURNAL, during the

past sixteen years, since this subject was first introduced by Dr. Parigot, it is unnecessary here to reiterate them. The State of New York is now giving the question of separate care of the chronic insane a practical solution, in the Willard Asylum for the Chronic Pauper Insane.

15. Iowa. *Fourth and Fifth Biennial Reports of the Iowa Hospital for the Insane:* 1866–67–68–69. Dr. Mark Ranney.

At the beginning of the last biennial period there were in the hospital 344 patients. Admitted since, 400. Total, 744. Discharged recovered, 187. Improved, 31. Unimproved, 41. Died, 87. Total, 346. Remaining under treatment October 31, 1869, 398.

The report now before us is a double biennial one, and contains 150 printed pages. It is nearly six years since we have received any report from this institution. The present one gives evidence of much study and research. The doctor's remarks upon the subject of insanity are interesting, and will serve to enlighten the public upon the causes and forms of mental disorder. Many improvements have been made which increase the comfort and hygienic condition of the patients.

16. Maine. *Report of the Maine Insane Hospital:* 1871. Dr. H. M. Harlow.

There were in the hospital at date of last report 345 patients. Admitted since, 174. Total, 519. Discharged recovered, 58. Improved, 28. Unimproved, 21. Died, 44. Total, 151. Remaining under treatment, 368.

A new chapel is in course of erection, and many improvements and repairs have been carried out during the year. Upon the subject of causation the doctor remarks as follows:

It will be observed that among the causes above enumerated, six are assigned to religious excitement. On this point it may not be

improper to say a word. In our observation of the manifestations of insanity in all its varied forms and types, we have noted with a good deal of care this form of disease termed *religious insanity*, or insanity caused by religious excitement. We have been led to this more, perhaps, from the prevalent idea existing in the minds of many, especially those who are disposed to view the subject of religion lightly, that it is a cause of insanity, in order that we may judge more correctly of the relative connection which exist between the two. It is quite common for such persons to seize upon all cases of insanity which exhibit in the least degree symptoms or manifestations of a religious character, and with an off-hand slur pronounce the disease as caused by religion—victims of some religious excitement. After carefully watching and studying these cases, we are satisfied that religion has no more to do in producing insanity in those cases than gold and silver or the most precious stones have in developing the disease in those who fancy themselves immensely rich. No one would for a moment entertain the thought that the man who believes his legs are made of glass was made mad by that vitreous substance, or that the young woman who loses her identity and believes that she is a cat or a dog, exhibits some of the characteristics of those animals because of any previous influence they had exerted over her prior to the development of her insanity.

Foreign Reports:

Fourth Annual Report of the Inspector of Asylums, Prisons, &c., for the Province of Ontario: 1870–71.

Report of the Medical Superintendent of the Asylum for the Insane, Toronto: 1871. Dr. Joseph Workman.

There were remaining at date of last report 529 patients. Admitted since, 174. Total, 703. Discharged, 77. Eloped, 1. Died, 28. Total, 106. Remaining under treatment, 597.

Upon the subject of provision and cost of maintenance of the insane, a question which has recently been agitated in the province, Dr. Workman makes the following remarks:

A fourth asylum will very soon be found requisite; and now that we have been informed by high authority, that "it has been

proven that the maintenance of the insane can be done at one-half the cost of formerly" (vide *London Free Press* of 10th June, 1871,) there can be no reason for procrastination.

The Province is overflowingly rich, and very prosperous, and insanity is not on the wane. God forbid, however, that any of those philanthropists, who would cut down the Toronto Asylum allowance of beef, bread, butter, blankets, tea and sugar, fifty per cent., should themselves suffer under this reduction. No one would desire that even the most earnest teetotaler should fall into dementia, or the grave, from lack of either food or stimulants. I am sure that an abundance of the former is the best curative of insanity; and I have seen more good done by the latter in this institution than they ever have accomplished in contested elections.

Our daily ration of beef (bones included) averages about 11½ ounces. Some of our people, with softening brains, require very liberal diet. It would be hard times with these should a competitive Irish poor-house system of dietetics become the high road to popularity.

We have now, too, a decent number of paying patients, of various degrees of respectability, for whom it is not only advisable, but just and proper, to provide some variety of diet, and some extra comforts.

We also quote the doctor's observations upon consumption as a mode of death in insanity. All familiar with the subject will recognize the force of his statements.

I have in former reports made the observation that consumption, in female lunatics, has appeared to be the compensative death factor, against general paresis in men.

Four of the ten cases of consumption were of the *manifest* form, and six of the *latent.* The three men who died of consumption had all been inveterately addicted to the secret evil habit. The form of the disease in all three was the *latent.* This is the almost invariable termination of the wretched existence of this class of lunatics. Their vitality has been brought down to so low a degree of feebleness, that disease seems to be unable to assume activity. They cough not, expectorate not, sweat not, have no blood-spitting, no colliquative diarhœas, no pleuritic pains, and assuredly none of that mental brilliancy, insane hope, and indomitable restlessness so usually met with in ordinary consumptives. They wilt, and with-

er, and perish, even as the tender plant, gnawed and poisoned at the core by a hidden destroyer.

Such is the fate of hundreds and thousands; but the world knows not, or heeds not, the terrible fact; and hundreds and thousands are continuously crawling on in the hideous march of *death*. Some, perhaps,—indeed but the few,—become insane; the rest die outside of asylums, and the moral and corporeal canker escapes detection. If all men did their duty, this pestilence might be checked.

Report of the Medical Superintendent of the London Lunatic Asylum: 1871. Dr. Henry Landor.

The doctor dwells at some length upon the cheapness of construction of buildings and of the support of patients. While it is important in the erection of such institutions to exercise the most rigid economy, it is not wise in a government to seek relief in cheap structures at the cost of permanency. Although the institution had been in operation only since the preceding November, expensive repairs have already been required.

The tiles in the water-closets, on the male side, were made of very soft, ill-burnt material, and they were laid in sandy mortar rather than in cement. I have had them all relaid in proper material, and I have been compelled to do two of them with brick, as I had to use the sound tiles to fill up the other closets where the tile was worthless. They are now tight and in good order.

The plaster beneath the corridors has been falling ever since our occupation of the building. I believe the chief cause is joists of too light a construction, for when excited patients dance or jump on them, down comes the plaster; and also too small a quantity of hair in the mortar, as I am assured by the plasterer who repairs the damage; perhaps, also, much is due to occupation of the building too soon after plastering. Much cost has been incurred in replacing plaster, and will continue to be incurred.

The quality of paint used in the building could not have been worse, for it rubs off nearly like whitewash.

The windows have been an incessant cost and trouble, for they are always out of order, and will not shut when open, nor open when shut, and the rackets on which the chains revolve are always

out of order. I am not saying too much when I state that one carpenter has been occupied fully four months in going over the building, keeping the windows in working order.

The shutters in the refractory wards were never strong enough. They can be bent and torn by comparatively feeble women, and the screw fastenings are of the worst and softest iron, and have long been useless. The shutters have been closed by screws through them into the mullions for a long time.

I suppose there never was an asylum built where some such details of construction have not had to be complained of immediately after occupation, and therefore we have no more to complain of than other newly built asylums, and indeed far less, for my visitors from the States' asylums tell me that they have far larger complaints to make of their institutions, and far grosser faults to remedy. I am therefore not pointing these evils out in a spirit of fault-finding, but to indicate things that have to be amended; for I am ready to bear the strongest testimony to the excellence of design, as well as of construction, with few and comparatively trifling exceptions; but it always happens that small defects such as these are those that give the administrators the greatest amount of trouble and inconvenience. Thus, to us the want of shutters, that can not be secured, or windows that can not be shut up at night, without a carpenter, are troubles greater than much larger errors would be in general construction.

The doctor states "the mortuary has never been of any use" from its smallness and imperfect arrangements. That "the bakery is too small for its purposes." That the provision against fire is inadequate, that "the ventilation of the water-closets does not act efficiently." All these things justify the declaration of the doctor, that "the desire to save expense in construction, however laudable, is not always, by any means, true economy."

Upon the subject of treatment, the doctor makes the following remarks:

The treatment of insane in asylums is a question still unsettled. In this asylum, containing so large a number of hopeless incurables, treatment is with them confined to taking care of their comforts, providing them with good and nourishing food in sufficient

abundance, clothing them well, and working those who have strength to work, according to their power, exercising out of doors all who are able to walk, male and female, giving them as much amusement and occupation indoors as they can enjoy. For this purpose we have daily dances in the afternoon for an hour or two, music, stereoscopic views, &c., and they spin, knit, and make all the socks and stockings used in the asylum, make all the clothing, except the men's, and repair every thing in need of repair. We have never had any tailors or shoemakers fit to work sent to this asylum, and therefore the work peculiar to those classes has to be done by paid labor.

Employment is the rule of treatment, and the best. We have few sick, and our deaths this year have been very few. Medical treatment has been confined to keeping up the strength by the use of stimulants, tonics, and the phosphates. I requested the assistant physician, Dr. Lett, to whom I am much indebted for his constant attention and very able assistance, to give me a report of the action of medicines employed in the treatment of the patients, during the past few months, although the number of cases is not sufficient to enable us to draw positive conclusions.

The English and Scotch reports, noticed below by title, present the usual dietaries, statistical matter, &c. The discussion of treatment, and of questions relating to the care of the insane, seem to be relegated to the respective Boards of Commissioners in Lunacy.

Twenty-Third Annual Report of the Somerset County Lunatic Asylum: 1870.

The Seventy-Fifth Report of the Friends Retreat, near York: 1870.

Thirty-First Annual Report of the Crichton Royal Institution and Southern Counties Asylum: 1870.

Medical Report of the Royal Lunatic Asylum of Aberdeen: 1870.

Annual Report of the Royal Edinburgh Asylum for the Insane: 1870.

Annual Report of the Waterford Asylum for the Insane Poor: 1870.

REVIEW OF BOOKS AND NOTICES OF TRANSACTIONS OF SOCIETIES, AND PAMPHLETS.

On the Physiological Effects of Severe and Protrac'ed Muscular Exercise, with special reference to its Influence upon the Excretion of Nitrogen, by AUSTIN FLINT, M. D. (Reprinted from the *New York Medical Journal*, June, 1871.) D. APPLETON & Co., New York: 1871.

This monogram consists of a detail of observations made to show the effects of severe muscular exercise upon the excretion of nitrogen. The occasion was the attempt of Mr. Weston to walk four hundred miles in five consecutive days.

The view advanced by Liebig is, substantially, "that the elimination of nitrogen is to a great extent a measure of the waste of the nitrogenized elements of the tissues." This has been opposed by other writers and experimenters. Dr. Flint proceeded with the utmost care and caution with his observations. We are not able to give in detail his deductions; they tend to confirm Liebig's theory. The excess of urea excreted in the urine was largely in excess of the nitrogenized material ingested. And this it is just to conclude, making due allowance for any errors that may have been made in observation, was the direct result of the severe muscular exertion employed by Mr. Weston. We believe that correct scientific deductions are only to be arrived at by the repetition of such experiments of competent men who have no preconceived theory to sustain. This is the spirit which characterizes the whole paper of Dr. Flint. We commend it to the careful consideration of all who are interested in the solution of this important question.

Neuralgia and the diseases that resemble it, by FRANCIS E. ANSTIE, M. D., London. D. APPLETON & Co., New York: 1872.

This volume of Dr. Anstie is a work of great origi-

nality, based not simply upon thorough reading and familiarity with the most recent literature of the subject, but mainly upon the result of personal observation and experience.

He is particularly qualified for the work, from the fact that he has long been a sufferer from neuralgia of the fifth pair of cranial nerves. We think the doctor has struck the key note, when he asserts on page 14, that "it is universally the case that the condition of the patient, at the time of the first attack, is one of *debility*, either general or special." The acceptance of this fact, by the profession generally, would lead to a more rational and successful treatment of the disease than is usually pursued. In the treatment recommended by Dr. Anstie, the influence of this as a foundation principle is fully apparent.

His recognition of the fact "that neuralgic patients require and greatly benefit by a nutrition, considerably richer than that which is needed by healthy persons," fully sustains his view that the disease is essentially one of debility.

Our own experience confirms the assertion quoted from Dr. Radcliffe, that there is a "special tendency of neuralgics to neglect all kinds of fat;" and it is because of this tendency that cod liver oil becomes a most valuable aid in the treatment.

We have not space to speak at length of the various remedies mentioned for the relief of pain and the removal of the disease. We believe they have been well chosen, and are the most efficacious of the list in the materia medica. The differential diagnosis between neuralgia, myalgia, spinal irritation, &c., is made with clearness and can not fail to afford much light in many cases which have hitherto been the "opprobrium medicorum."

The chapters on the pathology and complications of neuralgia constitute, in the opinion of the doctor, the most important part of his work, and to them he directs special attention. His views on the pathology are best stated in his own words: "That the essential seat of every true neuralgia is the posterior root of the spinal nerve in which the pain is felt, and that the essential condition of the tissue of that nerve root is atrophy, which is usually non-inflammatory in origin." This view of the pathology of the disease, "in the confessed absence or extreme scarcity of dissections which even bear at all upon the question," is supported by deductions from a process of reasoning in regard to the anatomy and functions of the spinal nervous system, and has even then been reached more by exclusion than any distinct proof. The theory is a plausible one, and considerable research and ingenuity are shown in the manner in which it is sustained.

We were especially struck with this fact in the explanation of the relation of the fifth pair to the spinal cord. This objection to the theory had already presented itself, when we found it had been considered by the author as "an extra difficult test of the value of the theory."

We look for further proof in the accumulation of post mortem examinations before we accept the doctor's view of the pathology of the disease, but notwithstanding believe this to be the best work which has fallen under our observation upon neuralgia.

Handbook of Skin Diseases, by Dr. Isidor Neumann, *translated from the second German edition, with Notes, by* Lucius D. Bulkley, A. M., M. D. New York, D. Appleton & Co.: 1872.

This work of Neumann's is especially valuable for the description of the pathological anatomy and micro-

scopic changes of tissue in diseases of the skin. Following Hebra he has brought the subject down to include the most recent investigations. He has compiled largely from the opinions of other writers and presented a resumé of the views of a large number of co-laborers in this field. The translator has supplemented this work of the author by a further citation of authorities who differ widely in opinion upon the subject of causation and classification. This destroys, to a great degree, the unity of the work and detracts from its value in the hands of the busy practitioner. In the matter of treatment there is also a wide diversity of views.

The translator says: "We can by no means subscribe to the statement on the fifty-sixth page, which is an index to the plan of treatment advised in the whole work, namely: 'We place by far the greatest value upon external treatment.' This difference of opinion will, I think, appear abundantly in the notes appended."

The subject of dermatology is now attracting more attention than ever before. Many are devoting themselves to it as a special study, and for these Dr. Bulkley has done a good work in this translation, but we can hardly look upon it as a work upon skin diseases which will receive the popular support of the profession.

Transactions of the State Medical Society of Michigan: 1871.

We find in these transactions the report of a committee of the society, appointed to report upon "the treatment of the insane of the State, and the practicability and mode of managing county insane hospitals." Dr. J. H. Jerome was made chairman.

In this report the subject is fully discussed, and the following conclusions arrived at:

1st. That the successful treatment of the insane demands the constant supervision of experts in this particular department of disease.

2d. That while classification for care and treatment is of the first importance, and demands ready means for its accomplishment, yet the nature of the disease is such as to preclude the possibility of an intelligent division into curable and incurable insanity, and that all attempts hitherto, on the plea of economy or whatever other pretext, to effect such division, have resulted in little or nothing less than unmitigated cruelty.

3d. That the aggregation of all classes of insane persons under one general supervision, corresponding with the asylum at Kalamazoo, is the best arrangement now known to the profession for the maintenance and successful treatment of this class of unfortunates.

4th. That in order to a more general participation in the benefits arising from these humane institutions, their geographical relation demands the careful consideration of the State.

Your committee therefore submit the following resolutions for the consideration of the Society, to wit:

1. That the State should make ample and suitable provision for all its insane.

2. That insane persons considered curable, and those supposed incurable, should not be provided for in separate establishments.

3. That a just regard for the interests of the insane of the State require that her institutions be located with geographical reference to the population.

In accordance with the suggestions of this report the State is now erecting additional accommodations in connection with the present hospital at Kalamazoo, under the superintendence of Dr. E. H. Van Dusen.

Transactions of the Indiana State Medical Society. Twenty-First Annual Session: 1872.

This volume of transactions contains a number of papers, written in a clear and practical style. They are of a length which will insure them being read by the profession. The typographical character of the work is superior to that of many State medical society transactions.

The Buffalo State Asylum for the Insane. By-Laws and Acts authorizing location, appointment of Commissioners, organization, &c. Buffalo: 1871.

Code of By-Laws for the Government of the Board of Managers and Officers of Missouri State Lunatic Asylum, revised and adopted November 28, 1871 : 1872.

The Physical Diagnosis of Brain Disease, by REUBEN A. VANCE, M. D. (Reprinted from the *Medical World*, July, 1871.)

Transactions of the American Ophthalmological Society. Eighth Annual Meeting. New York, July, 1871.

The Relations of Epilepsy to Insanity and Jurisprudence, by W. J. CONKLIN, M. D., *Assistant Physician of Southern Ohio Lunatic Asylum.* (Read before the Ohio State Medical Society April 6, 1871.)

Phenomena Noted in a Case of Epilepsy, by S. CONANT FOSTER, M. D. (Reprinted from the *Medical World*, September, 1871.)

On Syphilitic Epilepsy, by REUBEN A. VANCE, M. D. (Reprinted from the *American Journal of Syphilography and Dermatology*, July, 1871.)

The late Dr. Conolly, of Hanwell, Eng., by CHARLES A. LEE, M. D. (Reprinted from the *American Practitioner*, August, 1871.)

Insanity in the Lower Animals, by W. LAUDER LINDSAY, M. D., F. R. S. E., *Physician to the Murray Royal Institute* (for the insane,) *Perth.*

Report of the delegate of the Fulton County, Ga., Medical Society, with the Report of its Committee. Atlanta, Ga.: 1871.

Seventh Report of the Trustees of the City Hospital, Boston: 1871.

Clinical Examination of Urine, by REUBEN A. VANCE, M. D. (Reprinted from the *Medical World*, September, 1871.) New York.

Centennary Address delivered before the Society of the New York Hospital, by JAMES WILLIAM BEEKMAN. (Published by the Society.) 1871.

A Contribution to the Treatment of the Versions and Flexion of the Unimpregnated Uterus, by EPHRAIM CUTTER, A. M., M. D. (Reprinted from the *Gynæcological Society.*) Boston : 1871.

The Prevention of Abscesses in Hypodermic Medication, by Reuben A. Vance, M. D. (Reprinted from the *Medical World*, October, 1871.)

Albany Hospital. A Statement from the Governors of its History and Present Condition. Albany, N. Y.: 1871.

Second Annual Report of the New York Ophthalmic and Aural Institute. New York: 1871.

Annual Report of the Health Officer of the City of Rochester, for the Year ending March 31, 1871, *by* Harvey F. Montgomery, M. D.

On the Cellular Structure of the Red Blood Corpuscles, by Joseph C. Richardson, M. D. Philadelphia. (Reprinted from the *Monthly Microscopical Journal.*)

Annual Report of the Secretary of the Interior, for the year ending October 31, 1871. Washington, D. C.

Can Chloroform be used to Facilitate Robbery? by Stephen Rogers, M. D., *President of the New York Medico Legal Society, etc.* (Reprinted from the *Journal of Psychological Medicine*, October, 1871.)

Annual Report of the Surgeon General, United States Army: 1871.

The Clinical Thermometer. Its Lessons and Teachings Tentatively Expressed in Numbers, by Z. C. McElroy, M. D. Zanesville, Ohio. (Reprinted from the *Medical World*, October, 1871.)

Tubercular Nephritis resulting in Abscess of both Kidneys, by John Lambert, M. D. Salem, N. Y. (Reprinted from the *Journal of the Gynæcological Society*, of Boston.) 1871.

A Contribution to the Surgical Therapeutics of the Air Passages, Illustrated by two Cases, by Gurdon Buck, M. D. (Reprinted from the *Transactions of the New York Academy of Medicine.*)

Reply to the Attack of Dr. E. S. Gaillard, by D. W. Yandell, M. D. (Reprinted from *The Practitioner*, for July, 1871.) Louisville, Ky.

Plastics and Orthopedics: A Report republished from the Transactions of Illinois State Medical Society, for 1871, *by* David Prince, M. D.

Trismus Nascentium, by James S. Bailey, M. D. (Reprinted from *Transactions New York State Medical Society.*) 1872.

The Mutual Relations of the Medical Profession; its Press, and the Community, by HORATIO STORER, Jr., M. D. (Reprinted from the *Journal of the Gynæcological Society*, of Boston.)

Address delivered at the Annual Meeting of the Association of Medical Editors on May 1, 1871, *at San Francisco, Cal.*

A Review of Darwin's Theory of the Origin and Development of Man, by JAMES B. HUNTER, M. D. (Reprinted from the *Journal of Psychological Medicine.*) July, 1871.

The United States Patent Law; Instructions how to obtain Letters Patent for new inventions, by MUNN & Co. New York: 1871.

Report of the Superintendent of Public Instruction of the State of New York, 1871. Hon. ABRAM B. WEAVER, *Superintendent.* Albany: 1871.

APPOINTMENTS.—On the first of October last, Dr. A. O. Kellogg, who had been an assistant physician in the New York State Lunatic Asylum for nine years, resigned the position of first assistant physician, and accepted a like position in the Hudson River Hospital for the Insane; Dr. J. M. Cleaveland, Superintendent.

Subsequently, Dr. Judson B. Andrews, second assistant physician in the New York State Lunatic Asylum, was appointed first assistant, Dr. Walter Kempster, third assistant physician, was appointed second assistant, and Dr. Daniel H. Kitchen, of New York city, was appointed third assistant physician, to fill the vacancy.

AN ACT to provide for taking testimony in certain matters relating to State charitable institutions.

Passed April 25, 1871: three-fifths being present.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

SECTION 1. Whenever the State board of commissioners of public charities, or the managers, directors or trustees of any asylum, hospital or other charitable institution, the managers, directors or

trustees of which are appointed by the Governor and senate, or by the legislature, shall deem it necessary or proper to investigate and ascertain the truth of any charge or complaint made or circulated respecting the conduct of the superintendent, assistants, subordinate officers or servants, in whatever capacity or duty employed by or under the official control of any such board, managers, directors or trustees, it shall be lawful for the presiding officer for the time being of any such board, managers, directors or trustees, to administer oaths to all witnesses coming before them respectively for examination, and to issue compulsory process for the attendance of any witness within the State whom they may respectively desire to examine, and for the production of all papers that any such witness may possess or have in his power, touching the matter of such complaint or investigation; and willful false swearing by any witness who may be so examined is hereby declared to be perjury.

§ 2. All persons examined as witnesses under the first section of this act shall be paid the same fees as are now paid to witnesses in the Supreme Court by the said board, managers, directors or trustees, authorizing the issuing of such compulsory process.

§ 3. Any person willfully neglecting to obey any subpœna or citation to testify or produce papers as provided in this act, shall be liable to a penalty of one hundred dollars, to be recovered, with costs of suit, before any court having cognizance thereof.

STATE OF NEW YORK, }
Office of the Secretary of State, } ss.

I have compared the preceding with the original law on file in this office, and do hereby certify that the same is a correct transcript therefrom and of the whole of said original law.

HOMER A. NELSON,
Secretary of State.